Industrial Finishing

CONTENTS FOR JANUARY, 1926

With the Editor 5
Modern Brushing Lacquers, by C. F. Merrifield 7
New Paint Strainer, by W. F. S. 9
High Quality Varnish Spraying, by Robt. L. Kent 10
Auto Sandblast News 13
Auto Finishing and Refinishing, by Wm. J. Miskella, M. E. 14
Pin Holes in Varnish Coats—I, by P. J. Marvington 17
Finishing Toys in a Small Shop, by D. A. McKinnon 22
Spray Gun News 24
Modern 'Cellulose Lacquers—II, by Arthur Orr 26
Spray Booth News 30
Solving Modern Problems, by J. C. Hertstein, Jr. 32
The Real Fire Danger 33
Editorial 34
- Nineteen Twenty-Six.
- Better Materials—Improved Methods.
- More Auto Refinishing in 1926.
- Keep Up Interest in Varnish.

English Cars Lacquered 38
Finishing Zinc Castings, by S. H. L. 38
Bird's Eye Effect, by R. N. W. von Lindau 40
Coating Brass to Prevent Tarnish, by L. C. K. 40
New Finish Materials 42
Wet Sanding Practice 42
Spray Gun Nozzle for Stain Blending and Shading, by M. Sullivan 42
Electric Release for Dip Tanks 44
Spray is Widely Used 44
Questions and Answers 46
Finish Inside a Yacht 46
Filler Stain for Lacquer 46
High-Lighting Brown Birds Eye 46
Steam Bending Stains 48
Lacquering Metal Panels 48
Finishing Hickory Handles 48
Italian Oak Finish, by I. F. and E. E. Oreingson 50
Stippling Lacquer and Paste, by R. L. Masterson 52
Finishing Metal Toys, by Fred Girard 54
Ash Refrigerator Finishing, by I. F. and L. C. Fanitzer 54
Finishing W. Cedar Pencils, by M. C. Soule and I. F. 56
More About That Enameling—Nickeling Job, by E. G. Burgess 59
Finishing Cheap Furniture, by T. B. Weston 60

Copyright 1926

Published by Practical Publications, Inc., Room 603, 222 E. Ohio St., Indianapolis, Ind. A. T. Gaumer, President; W. H. Rohr, Vice-President and Managing Editor; R. E. Suits, Secretary and E. A. Dosch, Treasurer. Eastern representative, C. A. Larson, 154 Nassau St., New York, N. Y., phone Beekman 3471. Western representatives, Friedman & Peck, 431 S. Dearborn St., Chicago, Ills., phone Harrison 7218. Missouri representative, G. H. Dirbold, 1112 Hodiamont St., St. Louis, Mo., phone Cabany 5741-J. Subscription rates, $1.00 per year in U. S. and possessions; $1.50 per year in Canada and $2.00 per year in foreign countries. Advertising rates on application.

JAPANNING - ENAMELING - DRYING

THE SKINNER
Revolving Door Oven
ECONOMICAL!!

Reduces costs, increases production, shortens baking period, less heat lost and fuel consumption decreased.

The equipment includes indicating thermometer, 14 grid supporting racks, complete ventilation system with motor driven exhauster and atmospheric burners, mixing valves and stop cocks, complete to connect to the gas line.

It is also made for electric and oil heating.

The best materials and construction are used in the Skinner Oven.

The temperature range is 100 deg. F. to 500 deg. F.

Write for descriptive and illustrated booklet

SKINNER BROS. MANUFACTURING CO. Inc.

ST. LOUIS, MO. - ELIZABETH, N. J.

Special Ovens Built To Specifications

With the Editor

THE MAN we term a "good mixer" socially, is generally well informed—that is along the lines in which he is interested. Take, for example, a man of your acquaintance who is a good mixer in political circles. You know him, and if you are interested in anything politically you naturally feel that he knows something about it—probably a great deal. He undoubtedly has some influence and what he says carries weight. He may not fill a high office but if he is a good mixer he is pretty sure to be well informed on what's going on. It's very much the same thing in any other line. The social mixer becomes informed through listening and talking to those with whom he comes in personal contact.

The majority of foremen finishers haven't the opportunity to mix personally with a wide acquaintance of men in their craft; that is insofar as meeting, listening to and talking with other finishers. They would like to do it, but they haven't the opportunity. If they did, the contacts thus established would be mutually beneficial and all foreman finishers would soon become better informed on the latest finishing methods, problems and news in general.

This lack of opportunity to mix in person with many others of the craft need no longer be responsible for the existence of thousands of "finisher hermits" throughout the country. INDUSTRIAL FINISHING eliminates this condition. INDUSTRIAL FINISHING is a convenient medium where everyone interested in finishing methods, problems and news can meet and exchange ideas to their mutual benefit.

Every foreman finisher and production executive owes it to himself, his associates and his firm (present and future) to be well informed in a practical way on materials, equipment, methods and shop kinks used in finishing rooms and paint shops. Be a good mixer and you will always be well informed. But be an active mixer! Listen to what others have to say and say something yourself. Read INDUSTRIAL FINISHING, and write something, too. In a small crowd your voice may be easily drowned but in INDUSTRIAL FINISHING your written word will broadcast free from static to more than 10,000 readers who are all attention, as you are now.

W. H. Rohr

Managing Editor

CLOVER LEAF BRAND

Industrial Finishes

1846 **Greetings for 1926** 1926

May Your NEW YEAR be
Filled with HEALTH,
First Coated with HAPPINESS, and
Varnished with PROSPERITY.

The Executives and Salesmen of MAYER & LOEWENSTEIN take this opportunity of thanking their many friends for their patronage during 1925; and express sincere appreciation for the many fine comments on their newest products:—

No. 664 QUICK FLINT FILLER

"The Perfect Pigment First Coater"

VELVET DRAWER COATER

No. 12 LACQUER

We have just completed our EIGHTIETH YEAR as specialists in manufacturing finishing materials, and respectfully solicit inquiries from those who have finishing problems and seek better materials.

MAYER & LOEWENSTEIN

164 Water Street - NEW YORK CITY

Manufacturing Specialists since 1846

VARNISHES - ENAMELS - LACQUERS - JAPANS

Modern Brushing Lacquers

Now that brushing lacquers have been developed for service in industrial production, it is important that finishers understand their peculiarities and know how to use them; also how to prepare surfaces for them

By C. F. Merrifield

IT HAS long been the dream of both users and manufacturers of nitro-cellulose lacquers to some day be able to apply them by brushing. Until just recently it has been necessary to apply lacquers only by spraying or dipping, due to the rapid drying qualities and the tendency of one coat to soften up the coat directly beneath it; this prevented the application of a thick film by brushing, and gave a rough or uneven finish.

Constant development work has been done over a long period of time, trying to produce brushing lacquers, but with little success. Now, according to information which has just been made public, at least one of the largest makers of clear and colored lacquers has succeeded in overcoming these difficulties and now has on the market a complete line of clear and colored lacquers which may be applied by brushing, spraying or dipping.

For Production Finishing

While this particular line of brushing lacquers was first designed for household use in refinishing furniture, floors, woodwork, and other surfaces that are customarily painted or varnished in nearly every home, they have already found many profitable uses in the manufacturing trade as well.

They have been found to be well suited for brushing all kinds of toys, chairs and other manufactured objects, where it is impractical to use the spraying or dipping method. They can also be used for spraying or dipping in case either of these methods are preferred to brushing. Very little or no reduction is required for either method of application, because they are thinner in body or viscosity than the customary types of lacquer used exclusively for spraying or dipping.

Put on Any Clean Surface

A peculiar feature of these brushing lacquers is the remarkably non-softening action on preceding coats. They can be applied over practically any painted or varnished surface, provided it is clean and free from oil, grease, wax and dirt, without softening and blistering the paint or varnish. Practically all of the spraying or dipping type of lacquers would act very much the same as a varnish remover under such circumstances.

This peculiar property allows these brushing lacquers to be safely used for refinishing over painted or varnished surfaces, and likewise permits of the application of as many coats as desired, since one coat does not completely soften the one beneath it, but only enough to get a good bonding action.

Preparation of Surface

On new, manufactured articles, which have not been previously

finished, these brushing lacquers give very good results when properly applied. They may be applied directly over metal surfaces that are chemically clean and free from dirt, grease, oil, rust or other foreign substances; or a coat of red oxide paint primer, constructed on an oil or varnish base, may be used next to the metal.

In special cases a lacquer primer may be used, but the sticking properties will not be quite so good as when the oil base primer is properly applied and dried.

On wooden or composition surfaces of close grain and smooth surface, the brushing lacquer may be applied directly next to the bare surface. If the surface is spongy, soft, rough or porous, it is better to apply one or two coats of oil base material to prepare the surface before the lacquer is applied. Any paint material, which fills the imperfections, dries hard, sticks tight and is not affected by the lacquer solvents, can be used.

Regardless of the type of surface over which the lacquer is applied, it should be thoroughly clean and dry. A clean surface is very important, as no lacquer product will adhere to wax or grease, and dust or other foreign substances will always harm the finest finish. When using brushing lacquers over painted or varnished surfaces it is necessary to make sure they are clean, hard and dry to get good results.

Brushes for Lacquer

It is advisable to use a new brush for the application of brushing lacquers, but in case one is not available, a used brush, that has been well cleaned of the last trace of paint or varnish, can be used. Either a flat or oval brush can be used, although some prefer an oval brush on the theory that it will hold more material and permit of a fuller, wetter coat than a flat one.

Practically any style of glue set or composition set brush can be used, or even a rubber set brush, if the rubber is of such a nature that it will not be softened by the lacquer solvents. The main thing is to use a clean brush and one which will not lose its bristles, due to the cement or binder not withstanding the action of lacquer solvents.

Stir Before Using

There is a tendency for the pigment portion in lacquer enamels to settle out in a manner similar to that in regular paint materials, therefore the contents of each package should be stirred thoroughly each time before using.

In the event there is a layer or sediment on the bottom of the package, it must be entirely loosened by stirring until all hard particles have been dissolved in the liquid. Best results are obtained on small packages by pouring a portion of the liquid contents off and then pouring it back into the package slowly while stirring constantly with the flat end of a piece of wood or a paint paddle.

After the brushing lacquer has been thoroughly stirred it should be evenly applied with the brush well soaked with the material. The work should be brushed lightly and flowed on freely, no effort being made to brush it out thoroughly as one would do with a house paint.

In case of ridges, runs or sags, which will not appear if properly

applied, they can be removed during the application of the next coat, or a brush can be dipped into the brushing lacquer reducer and used to smooth out such defects.

Coats and Luster

From 20 to 30 minutes should be allowed between coats of lacquer. On metal and smooth surfaces, two coats will usually give good results. For extra rough surfaces, three coats sometimes may be required, and under certain circumstances one coat may be found sufficient.

Where a higher luster than that ordinarily given by the lacquer enamel is required, a coat of clear lacquer can be applied over the colors, especially where the dipping or spraying method is used. Or, the colored lacquer can be rubbed and polished with one of the trade-marked rubbing compounds, or with pumicestone and oil, followed by polishing with a lacquer polish, or with rottenstone and oil.

The fact that these brushing lacquers can be applied directly over old finishes that are free from oil, grease, wax, dirt and other foreign substances, makes them ideally suited for factory, office or home maintenance work.

The quick-drying feature makes it possible to refinish a floor and walk on it an hour later. This same feature makes these lacquers ideal for marking off traffic lanes, stations, etc., in manufacturing plants, as well as for finishing the manufactured articles, and for general maintenance work.

Maintaining the Consistency

If the consistency of the lacquer enamel becomes too heavy for satisfactory brushing, due to the evaporation of the volatile solvents after the package has remained open for some time, the addition of a small quantity of reducer will bring it back to its original consistency. A special reducer for this purpose, as well as for cleaning brushes and containers, is supplied by the maker of the lacquer.

The brush should be cleaned immediately after using and while still wet with the material, using the brushing lacquer reducer for this purpose. After the brush is clean it should be dried carefully on a rag before laying it away. Then it will be in excellent shape for use the next time.

New Paint Strainer

A paint strainer having a quickly renewable wire cloth bottom has recently been developed by the Newark Wire Cloth Co., of Newark, N. J. The rim is made of galvanized sheet iron while, for bottoms, steel or brass wire cloth is generally used. Brackets are also riveted to the frame so that if desired the strainer or sieve can be placed on top of a barrel or drum.—W. F. S.

The elimination of small leaks is the responsibility the employe owes to the organization of which he is a part.

Waterproof Sandpaper Patents Allowed

It is announced that patents, for which application has long been pending, were issued Dec. 8, 1925, to the Minnesota Mining & Mfg. Co. of St. Paul, Minn., covering waterproof sandpaper. This, it is said, establishes legally the origin and status of one of the progressive strides in abrasive development.

High Quality Varnish Spraying

Data for this article was obtained from an authority on modern varnish spraying, Mr. Paul J. Kennedy, Manager of the Industrial Department of the Murphy Varnish Co.

By Robt. L. Kent

IN SPRAYING, the fundamental effort is to duplicate mechanically the hand brushing of varnish. What factors are different? In hand brushing, varnish is spread by thousands of bristles. It is laid off and crossed until the desired film is applied free of sags. In spraying, varnish is atomized into a mist of countless tiny globules.

This is accomplished by three important actions. First, when the compressed air leaves the nozzle of the gun its violent expansion involves a temperature change, which chills it sharply. Second, compressed air shot on, is impinged into the minute globules of atomized varnish. They are hungry for oxygen and absorb it greedily. Third, the air friction during the passage of these globules from the spray gun to the work results in the forced evaporation of a large percentage of the volatile thinners.

Thus, with freshly brushed varnish, we have on the work a film at room temperature containing most of its thinner, and starting its oxidation; with freshly sprayed varnish, we have a coat at possibly 40-degs. F., minus perhaps 75 per cent. of its thinner, and already partially oxidized by mechanical air blowing.

Influence of Temperature

The first factor is temperature. Obviously 40-degs. is too cold for a varnish. The chemical action of oxidation or drying is retarded by cold and accelerated by heat. The specific mechanical action is that this cold film of varnish adjusts itself to the normal temperature of the workroom and in so doing, expands in volume.

Therefore, a coat which looks proper, immediately after application, may so expand in volume as to cause runs, sags or excessive pebbling—by its conformity to the pore surface of the wood expansion—or more dangerous, particularly with China-wood oil varnishes, it may reproduce "overcoating."

This latter condition is not always detectable, and the resultant "top drying" or "case hardening" will subsequently produce alligator checks. In extreme cases, particularly in a poorly ventilated room, the alligator checks appear within a few hours and shortly after the varnish is apparently "out of dust."

The solution of this condition is to give the varnish and the air sufficient compensating heat to neutralize the chilled varnish globules to normal room temperature of 70-degs. F. Experiments of heating varnish in bucket containers have shown 135-degs. F. to be a practical compensating temperature. It is safer to have too much heat than too little, for contraction of a fresh film does not hold the possibilities for trouble that expansion does.

Leveling and Drying

The second point to be remembered is that brushed varnish contains most of its thinner,

which facilitates its flowing and leveling. Sprayed varnish has lost most of its thinner and its leveling powers are very limited. This is one of the best points in spraying, for a properly applied coat, as it appears when shot from the gun, will be quite comparable to the dried film. If the workman has the impression of a brush coat of varnish in his mind, it is safer for him to first feel his way by spraying too lightly rather than too heavily.

Many of the latest installation units include two small booths set side by side.

The third point is that the oxidation of brushed varnish proceeds in a normal manner, whereas the sprayed varnish is already partially oxidized. It has been conclusively demonstrated that what might be termed the "whip" of the bristles in brushing, has an unique effect in promoting thorough oxidation.

It is excellent practice, particularly on large flats, such as desk tops, etc., to rapidly brush through the sprayed varnish immediately after application. This method is not generally employed, but the results produced in uniform drying and coating, not only give a safer and better finish, but actually show a decided net saving in rubbing and polishing expense.

Ventilation—The Exhaust Pipe

This outlines briefly the foundation on which to base good varnish spraying practice, but there are several incidentals having to do with ventilation and method of application which deserve mention.

Regarding ventilation: if an exhaust pipe runs up the side of a building, the outlet should be above the level of the roof, but if below, make sure there is a right angle turn in the pipe away from the wall, and that this is capped or hooded. Factories have most peculiar results on certain days when the direction of wind is toward the building wall, directly attributed to these failures.

Spraying Below Proper Level

The most vital and yet the commonest failing in spray hood exhaustion occurs through spraying the work below the level of the circular exhaust opening so common in spray hood design. This frequently results in "pocketing" volatile fumes which reprecipitate on the work, affecting luster and leveling, and sometimes seriously interfering with drying and causing premature cracking of varnish finish.

For instance, in spraying an article similar to a radio or phonograph cabinet, the latter is often so located in the spray booth that there is a sharp pull of air currents directly over the top portion of the cabinet, making the varnish susceptible to case-hardening, and also formation of "gum specks" by shock of evaporation. At the same time, the sides and bottom parts of the cabinet will be seething in an atmosphere of "pocketed" volatiles

which exert an injurious effect on the finish, especially when rubbed.

Distribute Suction in Booth

The ideal construction for ventilation is a false back wall for the spray booth constructed of vertical baffle plates resembling a shutter. This inexpensive arrangement permits of a comparatively even pull on the fumes, rather than an extremely forcible draught in a limited area. In any event, work should be placed so that it avoids fume pockets and there should be a good pull from the bottom of the spray booth.

When necessary to open windows in a spraying room, never open any that are directly in line with the fan, as this causes many difficulties, not the least of which is mottling.

Spray to Save Rubbing

Just as heavy a film can be applied with a light coat of varnish by careful spraying, as if it is "loaded on." While there may be more time consumed, it has been repeatedly demonstrated that it is relatively slight compared with the time saved in the rubbing operation, and the finish produced is more generally uniform.

Where particularly nice coating is desired, the application of a sparing spray permits of "crossing coats"—similar to brushing practice. That is, a spary coat is applied in one direction and followed immediately by a second coating at right angles. This not only gives excellent leveling, but reduces rubbing costs.

Air Pressures; Thinners; Sags

The air pressure and body of a varnish to be employed in operation must be determined by actual local shop practice. It is safe to thin varnish if turpentine, or a mixture of turpentine and good petroleum distillate is used. This addition is simply a volatile-carrying medium, which evaporates, and its effect is usually helpful.

A simple rule, which helps uniform results and reduces coating troubles, is to always start the spraying operation at exactly the same spot on any specific piece of work.

To treat sags, or runs, have a can of thinned varnish handy, containing a brush. This brush should be wiped out thoroughly on the side of the can and the overloaded spots stippled. The varnish-dampened brush acts as a blotter. Then, if desired, these treated portions can be lightly sprayed over.

Spray Gun Distance

The distance which a spray gun must be held away from the work is a matter of determination by actual practice, and usually varies between 12 and 18 in. It is better to hold the gun close, with a sparing application, than too far away with a heavy stream. If the distance from the gun nozzle to the work permits of enough friction in its passage, to dissipate sufficient volatile solvent, it is possible with certain varnishes to cause a precipitation or breaking up of the gum and oil balance, depositing "gum specks" which are very mean things to handle in rubbing and polishing.

Diagnosing Troubles

In conclusion, possibly the way the writer analyzes varnish troubles may help you. He assumes the role of doctor and emphasizes the fact that the varnish functions by breathing, depending for healthiest results upon pure air and oxygen just as we do. It

sweats under humid conditions, just as we do. It chokes in foul atmosphere, just as we do. It is just as susceptible to cold and warmth, as we are.

Therefore, when a varnish difficulty occurs, the first step should be to determine whether conditions are as we should have them for our own organic system, and oftentimes, the solution will be readily apparent and correctable.

Auto Sandblast News

The use of sandblast by which fine sharp silica sand of uniform grade is shot through the nozzle of a hose by compressed air—this is a method developed for quickly removing finish coats from motor car bodies and preparing the metal surfaces for the primer and undercoats in the automobile refinishing process. Experienced body finishers and refinishers agree that a clean surface to start with, is the first requirement of a satisfactory job of motor car finishing.

The chief merits claimed for the sandblast system are that it is effective in removing finish without the use of chemicals or liquids, that it leaves a metal surface particularly adapted to receiving the priming and undercoats of any type of finish (varnish or lacquer job) and that it is rapid, safe and economical. Its use doesn't damage other parts of the car.

The accompanying picture shows a sandblast operator removing old finish from a Cadillac coupe in the auto paint shop of Brown & Dupree, Indianapolis, Ind. He is using standard apparatus supplied by the Hollingsworth Sand Blast Equipment Co., 1022 N. Meridian street, Indianapolis. The work is being done in a regular sandblasting room which is so constructed that not even the finest dust sifts through the walls which partition this room from the remainder of the shop.

Cleaning off old finish by sandblast system.

It is claimed that the finish can be completely removed from the outside of an ordinary closed car in from two to three hours with this sandblast system. For sandblasting metal surfaces, an air pressure of 60-lbs. to the square inch is generally used; for wood this pressure is cut down to from 12 to 20 lbs. The complete equipment includes, in addition to a closed room in which to do the work, a sand tank, an air compressor and tank, air gage, air reducing valve, water trap, sand valve, hose and hose clamps, nozzle holder and clamp, and extra nozzle tips.

Oils used in the make-up of finishing coats have probably undergone a greater change in recent years, than any other paint material.

The former varnish maker who used to put his own individuality into his product has disappeared and the chemist has taken his place.

Auto Finishing and Refinishing

Consulting Engineer on finishing problems explains modern system of finishing motor cars, reveals the functions of various materials and points out important features to consider in this kind of work

By Wm. J. Miskella, M. E.

THERE is not a great deal of difference between automobile finishing and refinishing. It is taken for granted that "finishing," applies to new work and "refinishing" to old work.

In the period that succeeded the carriage finishing days and preceded the lacquer finishing processes, it was customary to build up a beautiful high-gloss, perfectly smooth finish with a great deal of labor and many kinds of material. This meant high costs and long periods of time in the shop. Tying up the vehicle of an owner then was not a serious matter. Other means of transportation were popular and time was not considered so important.

Today all is changed. It is not the price charged for refinishing that worries the owner so much—it is the time the car will be laid up. At any rate this is the way the owner feels when he places his order and turns his car in to have it done over. Most finishers have had experience with customers of this kind and many have tried to satisfy the owner's demands.

Hurried Jobs Unsatisfactory

However, a word of caution is worth giving to refinishers about the owner who seems to insist on quick delivery and still expects quality. Just as sure as you try to hurry a job by sacrificing quality, you are sure to get into trouble, and you will find that the owner was not as particular as he thought he was about getting the car back quickly.

In other words, if a refinisher delivers a poor job quickly to satisfy the demands of an impatient customer he will never hear or see the end of his poor judgment. Every time the owner looks at the finish, he thinks of the man who did it. Every time the refinisher sees the automobile on the street, he recalls the hours of worry and distaste that he experienced with that particular car.

Finishing taxi cab bodies in large booth.

On the other hand, suppose the refinisher takes the job and does his best to turn it out on time—that is, he starts to work on it right away and he does not let other jobs set it aside. Suppose he conscientiously labors, first, to do a good job and second, to get it out by the time promised. Suppose further, that he is three

or four days late in delivering the car to the wrathful owner.

No doubt the owner will be greatly disappointed and will not get over this disappointment until some friend notices the newly finished car and begins to compliment him on its appearance. Result: refinisher will be forgiven for slow delivery and every day the owner drives the refinished car he becomes more and more pleased, at every opportunity he will say a good word for the man who did the job. All this may be summed up in the time old advertising phrase, "Quality remains long after price is forgotten."

The Change to Lacquer

Doubtless, most automobile refinishers realize by this time that a bombshell has been thrown into the finishing industry with the introduction of the lacquer finish —first on new automobiles and later on used cars.

It is interesting to note that the start of the lacquer era was delayed possibly two or three years, because all attention was turned toward the use of lacquer over the old finish, without removing the undercoats.

Over five years ago, the author discussed this feature with the president of a large lacquer manufacturing company, and made the statement at the time that it would never be possible to apply lacquer over an old varnish finish and have it stay on and not show some surface defects within six months. Time and experience have proved that this statement was correct. It is backed up by the fundamental fact that varnish materials dry by *oxidization* and depend upon the air for their lasting quality—the very thing that varnish must have to keep it from deteriorating. Sealing up a finish of this kind with a coating of material that dries by *evaporation* is bound to start something.

Complete Lacquer Systems

Automobile people did not take to the lacquer finish at first. Then lacquer manufacturers began to recommend the application of complete lacquer finishes from the metal up. There were periods in the lacquer wave of success when it was said that oxide primers were the proper ones to use. Then, it was stated that oxide primers would never do—that the lacquer would work on them the same as varnish remover and cause them to give away from the metal surface.

There was a great deal of trouble with undercoats, both oxide and lacquer. However, the exponents of lacquer did not give up and as a result we have today some very fine metal primers—some oxide, that is made with linseed or some other drying oil, as well as some lacquer primers. It makes little difference which is used, providing the proper drying time is allowed for each before the sanding surfacer is applied.

Function of Each Material

The application of a complete automobile finish has been more or less mysterious to those not familiar with the materials used. Yet, a short analysis of what each kind of material does, simplifies the matter very much.

The primer is a material the function of which is to adhere to the metal. It must do this, as otherwise the finishing coats that follow will have nothing to adhere to. Result: the whole combination of finishing materials

that are used will fail—if the primer fails.

Another function of the primer is that it must be capable of receiving and holding the sanding surfacer which follows, but this point has never given paint chemists much trouble.

The function of the sanding surfacer, as its name implies, is to permit sanding to make a smooth surface for the coats that are to follow. Materials used for this purpose are also called "rough stuff" and "filler." One or several coats may be needed to bring the surface to the desired degree of smoothness.

The next coat that is applied, after the sanding surfacer, is the color coat. Up to this point, both the lacquer and the varnish systems are very similar. In the varnish system the color, color varnish and finishing varnish coats follow on the sanded surface of the rough stuff. In the pyroxylin lacquer system, however, all these materials are succeeded by coats of the lacquer itself, no other materials being used. One, two or three coats of lacquer may be applied, depending upon the grade of the job desired.

Varnish Over Lacquer? No!

Attempts have been made to change the dull appearance of lacquer finish to a gloss, by applying varnish over the last coat. This plan has invariably failed, and it is not surprising, since there is no "tooth action" between these materials that would cause the varnish to hold to the lacquer.

The expansion and contraction properties of the two materials are radically separated, which theoretically means that they keep on working against each other mechanically—like two bitter enemies—they never get together and agree for any length of time.

Lacquer materials are expensive and they must be made to do all that is possible, in order to give the user a return in money for the investment he made. The great object that all lacquerists have is to apply enough of the pyroxylin lacquer material to give a good body.

Finishing fenders by spray system; arrows point to overhead exhaust in wall.

Rubbing and Polishing

Where a glossy finish is demanded, it must be obtained by rubbing the surface down and polishing it. Much energy has to be expended in getting the surface rubbed down so that it may be polished. For this reason, the matter of application is very important because a roughly-sprayed coating requires a great amount of rubbing before the surface can be put in shape for polishing. This means further that a considerable amount of the expensive lacquer material has to be removed, thus reducing the thickness of the lacquer coating and consequently its protective ability. Careful attention to the method of application with the proper kind of a spray gun will reduce the labor of rubbing to a minimum, and will leave on the

surface almost the full amount of lacquer applied.

A Financial Consideration

There are still finishers who feel that pyroxylin lacquer finishes have a short time to live. Perhaps they do not realize that automobile manufacturers who use lacquer finishes are saving thousands and thousands of dollars in the cost of manufacture, not because the lacquer finish is cheaper, for it is not, but because they are able to deliver cars in a week, after they are mechanically completed, instead of in thirty days, as under the old system.

This means that the problem also involves the question of finance. Lacquerists, who have experienced a hard time raising money to meet one weekly payroll, would get a concrete example of what lacquer finishing means to the automobile manufacturer if they were required to raise the equivalent of a four-weeks' payroll instead of the one they now raise.

Pin Holes in Varnish Coats—I

First installment of a two-part article in which the author analyzes the chief causes and submits remedies for a fault that has caused much trouble in finish departments of woodworking factories

By P. J. Marvington

IN THE finishing of pianos, furniture, and other articles made of wood, one of the more or less common varnish troubles, which is very frequently difficult to correctly trace back to its source, is pin-holing. This trouble shows up in the form of tiny round holes, usually not much larger than a pin point, in the surface of the dried varnish. It is the resemblance to the hole left by a pin that gives it the name of "pin-holes". Sometimes, however, the same trouble will make its appearance in the form of tiny bubbles or of small rings around the hole itself.

Where Pin-Holes are Found

Pin-holes sometimes show up in the first coat of varnish only, but often they cannot be overcome by any number of coats, once they have made their appearance. They are seldom found except over the pores of the wood.

This trouble is found more frequently on oak and mahogany than on walnut where the pore is straighter and more easy to fill. Mahogany veneer seems to give the most trouble, the soft, spongy veneers giving more trouble than the harder, firmer ones. Certain mahoganies are especially bad, for they often contain pores which are connected one with another by a U-shaped channel having two openings on the face of the veneer. One or both of these openings may be improperly filled with the result that the entrapped air causes pin-holing when the varnish is applied.

Cause of Pin-Holes

Pin-holing always shows up while the varnish is still soft and plastic. If the varnish once becomes thoroughly dry without showing this defect, it will never appear.

Pin-holes are always caused by one of two major conditions—either a gas of some kind breaks through the varnish film after it has set sufficiently to lose its flowing properties, but before it has entirely lost its plastic nature; or the pores may be so large or so deep that the varnish will not make a covering over the top of the pores, but distributes itself around all sides of the pores to form a lining.

Appearance of Pin-Holes

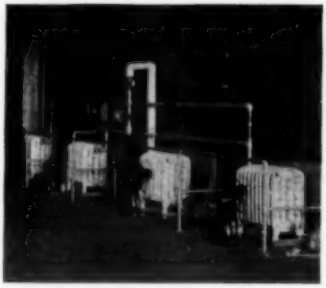
If the varnish is soft or slow-setting, it may roll back under the force of the gas and form a small ring around the hole. If it is quick-setting it may not be sufficiently fluid to flow and will rise up over the pin-hole in the form of a thin bubble. When the quantity of gas is considerable the bubble may be broken, in which case the defect may have a ring around it, or it may show merely as a fine pin-hole. Deep, unfilled pores usually result in the last-named type of defect.

Although gas and unfilled pores are the two major causes of pin-holes, there are a number of contributing factors. Some of these are given in the following paragraphs.

Moisture in Veneer

If the veneer is not dried out properly the pores will be swollen until they are almost closed, and if they are in that condition when they are filled, pin-holing is likely to result.

When the work goes into the finishing room in such a condition the higher temperature dries out the moisture, the pores open up, and little air pockets are left between the filler and the walls of the pores. The air in these pockets is likely to expand and bubble out through the varnish before it is properly set, but after it has lost the ability to flow back over the pocket. Pin-holing will be the result.



Some of the radiators, spray lines, fans and control apparatus in small varnish-drying room.

Poor Veneer

Good veneer is hard and has close pores. The poorer grades have a larger grain and are of a soft, spongy nature. The glue comes through the pores more easily, and as a result, more pin-holing is found on poor grades of veneer than on the better grades.

Grease in the Veneer

Crude vaseline, paraffin, fish oil, or other greasy materials are often used on caul boards to prevent them from sticking to the veneer. The heat and pressure of the gluing process transfers some of this grease to the veneer and drives it deeply into the texture of the wood. Scraping and sanding does not remove the

WHAT SELLS YOUR PRODUCT?

LOOKS—Every Time.

And what makes looks?
Design plus Finish.

Even more important than design is finish, for a good finish can redeem a poor design, whereas nothing can cover a poor finish.

Take no chances. Be sure of success by using EGYPTIAN LACQUERS, which for nearly fifty years have been used to obtain superior finishes for high class products.

A Service Bureau to Help You

Why worry about your problems when we will take them over for you. We will gladly answer questions dealing with finishing jobs, or anything to do with lacquering, without charge.

THE EGYPTIAN LACQUER MFG. CO.

90 WEST STREET, NEW YORK

Chicago, San Francisco, Los Angeles

EGYPTIAN LACQUERS

"Everlastingly Beautiful"

grease nor does washing the work with naphtha, although the last procedure helps some. By applying a thin coat of shellac, pin-holing from this cause can be eliminated.

It is better practice, however, to remove the cause than to cover it up. Aluminum cauls do not stick so easily and many manufacturers are now using them. A mixture of 5 lbs. of beeswax dissolved in a quart of raw linseed oil has given satisfaction to some manufacturers as a compound for preventing zinc or iron cauls from sticking to the veneer. This compound contains no non-drying oils and it is less likely to cause pin-holing.

Glue in Pores

If the glue in the pores of a piece of veneer is examined with a magnifying glass, it will be found to contain tiny air holes in great numbers. The air in these holes may expand after they have been coated over, and break through the finish while it is still soft, thus causing pin-holing.

Some manufacturers recommend sponging the work with a weak (not over 2 or 3 per cent.) solution of caustic soda before the final sanding, to dissolve some of the glue from the pores and thus make it possible for more filler to stick in them. Caustic is a poor substance to have beneath varnish coats, and I believe it would be better to change the method of laying veneer so the glue will not be drawn in the pores so much, or else use a heavier, more dense, better grade of veneer.

The following formula is said to be of value for treating veneer before it is laid to prevent the glue from coming through the pores.

1 gal.—wood alcohol
1 lb.—white shellac gum
1 lb.—rosin
½ lb.—cornstarch (well dried)
1 oz.—carbolic acid

The method of using this, as suggested by one piano manufacturer, is to apply it on the back side of the veneer, after which the veneer is laid between cold caul boards for two days and then transferred to warm boards for two or three days more. The cross banding should be well dried and rough sanded beforehand. The glue should be thicker than for usual work, and should be applied to the cross band or core, not to the veneer.

Let the glue stand on the work until it will not stick to the hand. At this point lay the veneer, put it between hot caul boards, and place under pressure as quickly as possible. The heat brings the glue back to a sticky condition, and the size will keep the water out of the veneer. After taking the work from the press, "stick" it in the usual way, using wooden caul boards to absorb the moisture and quicken the drying.

Du Pont Appointment

R. M. Vandivert has been appointed Advertising and Sales Promotion Manager of the Fabrikoid Division of E. I. du Pont de Nemours & Co. with headquarters at Newburgh, N. Y. He is widely known in the advertising field, having been formerly connected with the National Advertising Division of the Hearst Newspaper Organization, and also having been prominent as an advertising executive for motion picture trade magazines. He has also been actively identified in advertising capacities with other publications. During the War he was Commissioner for the Committee on Public Information in South America.

Three New DON-O-LAC Products

to Help Solve Your Lacquer Problems

Nitro-Don-O-Tex—

A new and inexpensive lacquer for either spray or brush. A wonderful finish for radio sets or inexpensive furniture. Can be rubbed.

Roc-Lac-Kote—

A new combination of gum, lacquer or solvents to produce a high grade finish. Can be sprayed or brushed.

Straight Wood Lacquer—

A new spray lacquer for water white finish of a quality and price that makes it attractive for all uses.

Write for quantity price and full description

DON-O-LAC COMPANY, Inc.
770 Exchange St., Rochester, N. Y.

Finishing Toys in a Small Shop

A small manufacturer of wooden toys gives some interesting facts about colors that attract the eye, and tells about his finishing and hand decorating methods

By D. A. McKinnon

BEING only a small concern, our method of finishing is far different from the larger firms who use modern spraying and dipping apparatus, and who do their ornamentation with the printing process or decalcomania transfers.

Our method is nearly all brush work and our decorations are put on by hand painting. In making our plant stakes, windmills, weather vanes and all outdoor things, we first give a priming coat of white lead and oil. Then we apply the colors in flat tone, after which we apply a good coat of the best spar varnish.

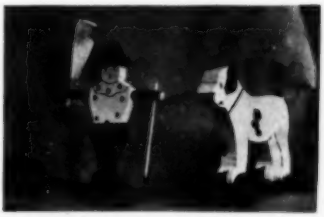
Where the article is white, as is the case of the windmills, we apply two coats of lead and oil, then a good undercoater mixed half and half without white enamel, and last a coat of white enamel. We certainly made many failures before getting this method to work right.

On our inside toys such as animals on wheels, dolls' furniture, etc., we now give a good coat of shellac, followed in due time by a coat of undercoater and then the enamel. The decorations come last. We dip the shellac but the other coats we brush on.

Finished in Enamels

All of our work is finished in enamels; all red that we use outside is enamel, and then spar varnish over it. This method is what is employed on carriage and automobile work, except that automobile work is now largely in lacquers. We have tried to use lacquer but the lacquer we have had so far is not suitable for brushing, as it sets too quickly.

The class of toys we make is different from the general run in that we do all decorations by hand, with the brush. In making the decorations we use tubes of oil paint, but if we want a color we do not have, we make it with our enamels.



Two typical toys—a "clown vane" and "dog on wheels."

Color scheme: (1) Green arrow; black feet, dots and hat rim; red leg at right and red hat crown; blue leg at left; white body and face; yellow arms and paddles tipped with red. (2) Red wheels; green base; white body spotted with black; red collar and mouth.

Our shop is not fitted to spray or do much dipping. We obtain our heat from a stove located in the work room, and there would be danger of explosion if we sprayed. Our business consists of manufacturing for our own summer retail shop and selling to other gift shops within a radius of 50 miles of Manchester, Mass. Then we get quite a number of orders for the holiday trade from

Armitage INDUSTRIAL FINISHES FOR METAL AND WOOD

Developed during a half century of practical experience and research work. Progressive manufacturers are using Armitage Finishes to help merchandise their products.

Armitage ARMORLAC LACQUER SYSTEM

THE FINAL FURNITURE FINISH

Attractive—Durable—Uniform

Armorlac meets every requirement of the exacting and "quantity production" manufacturer. It is easily applied and makes a lustrous, beautiful finish on wood surfaces.

Armitage ARMORCOTE BAKING ENAMEL

Protects metal against the elements. A durable baking enamel that combines vitrified hardness and elasticity, and it does not chip or check.

Leading automobile and metal products manufacturers use ***Armorcote.***

Complete information sent on request.

JOHN L. ARMITAGE & CO.

Est. 1876

NEWARK, N. J.

VARNISHES—LACQUERS—JAPANS

different parts of the country, the people of those places having seen our goods in the summer and ordering later.

Use Attractive Colors

In all our work of painting we strive to use colors that will catch the eye. The colors for this are lemon yellow, orange or dark yellow, very dark blue but not what most people would call wagon blue, brilliant vermillion, white, ivory, pink, baby blue, and black. We do not use white on inside toys, as it will sometimes turn a light yellow. Instead we use ivory. The green on all of our plant stakes and on a number of birds we make, is light green. We sometimes lighten it still more with white.

We have just begun to use shellac as a dip for the priming coat and believe a shellac substitute will be satisfactory. We used to put on two coats of undercoater with the brush, but found a coat of shellac is just as good, and it dries quicker.

Spray Gun News

The accompanying cut shows an all-aluminum-body spray gun fitted with Bakelite pistol grip and bronze-bushed bearings. Where the small container is shown connected to the gun here, the operator may substitute a regulation supply line hose for large quantity spraying. Connection for air hose is at the end of the handle.

Among the few parts incorporated in this gun, one is a self-centering plug valve with very heavy shaft. The gun is quickly adjusted from a cone to a fan stroke by a turn of the nozzle. All adjustments are made by hand.

The gun is light and fast, and it applies a uniformly wet coat of either primer or finishing material. It thoroughly atomizes lac-

New spray gun with jar attached.

quers, varnishes, enamels and other finishing materials used for industrial purposes. This gun is called, "The Matthews Type L Finisher's Gun," and is a product of W. N. Matthews Corp., St. Louis, Mo.

With the advent of mechanical means of applying finishing materials, the job of refinishing motor cars is becoming less difficult than heretofore.

If the automobile dealer has learned that it is profitable to repaint all his second hand cars before they are resold, then the driving public also should wake up to the fact that its cars can be driven longer and traded in for more money when well painted, than when they are in a run-down, dilapidated condition.

The moving finger points...

..."here—and here—and here..your product may be improved"

THERE is a moving finger that writes in the market place. As it writes, the sale of one manufacturer's products grows less and the demand for another's increases.

And the words it writes are: "This, which you came to buy, remains as it was. *But this other has been changed —and is the better suited for your needs!*"

So decisive are these words that volume of sales, percentages of profits, and the continuance of business depend upon them.

But improvement of a product may not necessitate the use of new basic materials, or new methods of construction. The addition of *a single new quality* may serve.

* * *

DUCO has added enduring beauty to the finish of motor cars; new qualities of endurance and appearance to furniture, to pianos, toys, typewriters, washing machines, and dozens of other articles.

In all these ways DUCO'S distinctive value has been proved . . . *it is a product that improves other products.*

* * *

Consider the place *your* product occupies to-day—with the trade, with the public.

What would happen if you gave it a plus value? If, by using DUCO, you made it more beautiful—more durable — easier to clean — sanitary — waterproof — steamproof — immune to the action of gases, oils, salt air, alkali dust, perspiration?

Suppose you found that DUCO would materially reduce your time or cost of production?

In order that you may know whether one or more of these new values may be added to your product, we freely offer the assistance of a DUCO Finishing Engineer. Write for a manual of information. E. I. du Pont de Nemours & Co., Inc., Chemical Products Division, Parlin, N.J., Chicago, San Francisco.

DU PONT DUCO

There is only ONE Duco DU PONT Duco

Modern 'Cellulose Lacquers—II

Concluding installment of an address on Nitro-cellulose lacquers, as delivered by Sales Manager of Commercial Solvents Corporation, at the Tenth Exposition of Chemical Industries

By Arthur Orr

A LACQUER film has much higher tensile strength per unit area of cross section than other similar materials. It is not uncommon to find lacquer films with a tensile strength of about 10,000-lbs. per square inch. This characteristic, while of great advantage in many ways, makes it necessary to strengthen other links in the chain to almost a corresponding degree. Adhesion, for instance, is very important. However strong a lacquer film may be, it becomes inferior to a much weaker film if it fails to adhere to its underlying foundation.

Expansion and contraction caused by changes in humidity and temperature must be met in a lacquer film by sufficient plasticity or extensibility to permit it to remain in place, but even aside from expansion and contraction, it is necessary that a lacquer film have such adherence that it will not continue to peel or chip off if some accidental mechanical injury breaks the film at any point.

In order to get sufficient extensibility, we may sacrifice some of our tensile strength and hardness, but just as steel is stronger and at the same time more elastic than lead, so a lacquer film may be stronger and more elastic than an oleo-resinous film, although its plasticity may be far less.

New Problems Presented

Poor adhesion is often the result of bad surface preparation. As the balance of a lacquer formula is upset by the presence of even small amounts of certain incompatible substances, it is important that the surface to be covered be cleaner than is necessary when oleo-resinous materials are applied. The manufacturer who takes up lacquer for the first time occasionally is slow in realizing the importance of surface preparation; but this trouble will gradually disappear.

A coat of lacquer dries in a few minutes. This is one of its most useful characteristics, but here again the user may have to readjust his old ideas.

The common type of blush is an indirect result of this speed in drying, but lacquers can be made which will dry without blushing, even in air which is almost saturated. Such lacquers, however, would be unnecessarily expensive. With commercial lacquers, it is, therefore, advisable to avoid extreme humidity and to maintain a room temperature of between 65 and 90-degs. F.

Recently developed materials and methods for polishing have enabled us to get as high a degree of surface luster with lacquer films as with other equally pigmented materials.

Thinner Layers

The greater strength, toughness, and resistance to wear of a lacquer film enable us to use it in thinner layers than would be at all practicable with oleo-resinous

ANNOUNCING

Swedish Lacquer

A Long Step Ahead
in Finish

AN OIL LACQUER THAT PRESENTS AN ENTIRELY NEW AND PROGRESSIVE IDEA IN FINISH

Write for samples and further information

Sun Varnish Company, Inc.

15th and Magnolia Sts.

Louisville, Kentucky

The originators of SUN No. 115
PALE RUBBING VARNISH

materials. This diminished thickness naturally means less filling power. It is, therefore, customary to put lacquer on smooth undersurfaces.

Where much building up is necessary it is customary to use old style materials for the undercoats, as their greater thickness per coat and lesser resistance to sanding permits economies in sanding time and material. But it is likely that even these will eventually be replaced by newly developed pyroxylin undercoats which dry rapidly at room temperature.

The actual cost of application varies greatly with the nature of the work. If dipping lacquer is used, the application cost should be the same as with other materials. Elimination of drying ovens is sometimes an important cost factor.

The fact that lacquer dries entirely through evaporation rather than through oxidation is an advantage not only in its practical use, but it also enables us experimentally to determine, in a much quicker time, just what its continued performance is likely to be.

Its Uses Extended

The best indication of how lacquer behaves after application is the remarkable way in which its uses have been recently extended.

Lacquer is now used on a great variety of surfaces. Many locomotives, passenger cars, tank cars, trolley cars, buses, trucks, and most American makes of automobiles are being lacquered today. Steel frame-work, and even exterior sandstone and skylights have been lacquered, at least experimentally.

In the Book-Cadillac Hotel at Detroit, above the mezzanine floor, all the wood and metal trim is finished in lacquer. A textile mill in New England has been refinished in white lacquer enamel.

A considerable percentage, possibly 40 percent, of the furniture now made in this country is being finished in lacquer, both clear and pigmented. Many ice-boxes, filing cabinets, and a great variety of miscellaneous objects and novelties are being coated with lacquers.

Lacquer gives a beautiful and a durable finish and its use saves time. We have, in these three characteristics, the explanation of its recent growth and future promise.

Anilines which a few years ago have been considered fugitive colors, are being continuously improved and perfected into fast or permanent coloring, such as nigrosines, reds based on paranitraanilines, yellows, greens and others. Nevertheless they are all considered bleeding colors and cannot be used in connection with metallic whites.

Holds Annual Convention

The Annual Convention of Binks National Sales Organization was held at the Garfield Arms Hotel, Chicago, Dec. 15th to 18th inclusive.

The opening address of Mr. H. D. Binks, President, was a most able and complete analysis of conditions in connection with the manufacture and distribution of spray painting and finishing equipment. As a part of this review he gave an informative array of statistical data which covered productive capacities, outputs, sales and prospects in all branches of industries.

The meeting was a notable one for numerous progressive developments. All representatives from various parts of the U. S. made reports of the most gratifying progress and at the close of this occasion, at which there were many reasons for rejoicing, a resolution was made to make the ensuing year the biggest ever.

ECONOMY without sacrifice of beauty and durability

ECONOMY No. 1. Prices within reason!

We have taken the cost of good paints and varnishes as the price goal which we must meet with our lacquer products.

ECONOMY No. 2. Greater coverage!

Our lacquer enamels can be thinned 1 to 1 and give complete coverage in *one coat.*

ECONOMY No. 3. Greater flexibility and adhesion!

This means no chipping, flaking or chalking—therefore no complaints, no refinishing and retouching expense. We consider this paramount—all our products are designed to meet severe conditions.

ECONOMY No. 4. Cut down your color stock!

Let us explain our system whereby you can reduce your stock of color enamels to a minimum and avoid accumulation of discontinued colors.

ECONOMY No. 5. Products designed for each industry!

"Why buy an auto enamel for a tin whistle"? We have *SOLD* thousands of gallons to the following industries:

AUTOMOBILES
CUTLERY
DOLL CARRIAGES
FORMS AND FIXTURES
FURNITURE, ANTIQUE
FURNITURE, FIBRE
FURNITURE, REED AND WILLOW
FURNITURE, NURSERY
FURNITURE, HOSPITAL
FURNITURE, STEEL
INTERIOR DECORATING
LIGHTING FIXTURES
NOVELTIES
PEARLS, IMITATION
PICTURE FRAMES
MEDICINE CABINETS
RADIO CABINETS AND PARTS
REFRIGERATORS
SIGNS, METAL AND WOOD
TOYS
TOILET SEATS
UNIT VENTILATORS

ECONOMY No. 6. "Speed-it-Up" Specialties Save Time!

WOOD SEALER—dries 20 minutes—fills and sands easily—transparent.

SANDING METAL SURFACER—dries 20 minutes—fills and sands easily—perfect adhesion to steel, aluminum, brass and white metal—NO PRIMER REQUIRED.

SANDING BUFFER COAT—dries 1 hour—when sprayed over varnish or paint prevents raising when lacquer coats are sprayed over—fills and sands easily—excellent for refinishing autos without burn-off, also furniture, etc.

ANTEEK CHEK—dries 15 minutes—used over clear lacquer finish gives antique checked varnish effect. With various colored bronze powders gives *new line* of beautiful decorative effects. Also pigmented cheks in all colors.

KNIFING PUTTY—dries in 1 hour—knifes without pulling.

UNDERCOATINGS—dries in 15 minutes—used for wood surfacers—excellent coverage.

TUKOTE WOOD LACQUER—high bodied—free flowing—high gloss finish in two coats.

MATT LACQUERS—give rubbed finish effects for various purposes.

ALSO A FULL LINE OF FINISHING LACQUERS, BRONZING LIQUIDS, THINNERS

—and—

SIXTEEN STANDARD PRIMARY COLORS EXCLUSIVE OF BLACKS, WHITES AND TINTS

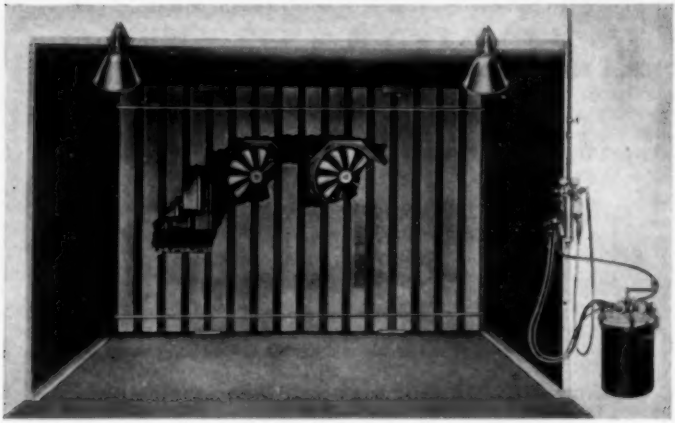
LACQUERS

ENAMELS

Royalin Flexible Lacquer Co., Inc.

105-109 Seventh Avenue
LONG ISLAND CITY, N. Y.

Manufacturers of Nothing But Lacquer Products



One of the new large size spray booths, 12 ft. wide, with part of baffles broken away to reveal construction.

Spray Booth News

Among the features of the new spray booth illustrated herewith, the most important is the special baffle construction located in the back between the working space and the exhaust fan.

According to the manufacturer, The DeVilbiss Mfg. Co., Toledo, Ohio, these baffles collect any deposits of solid matter in the material. The vapor is forced to make four 180-deg. abrupt turns before reaching the fan opening. This prevents accumulation of gums and pigment on fan blades, exhaust outlet pipe, or on the exterior of the building. The baffle plates are in three sections; they are easily dismantled and readily cleaned.

Equal velocity of air at all points in the booth, regardless of the location of the fan, in back, top or side, is accomplished by the design of the baffles. Both uniform and complete removal of all vapor is assured. The new design prevents draughts in the finishing room when the fans are not operating, and it provides for the shortest possible exhaust outlet pipe.

As the fan operates with equal efficiency in any location, it can be placed in the top, at either side or in the back of the booth, always using a straight outlet pipe. The booth is all metal construction, and the interior presents a smooth, practically unbroken surface which is neat in appearance and easy to clean.

A four-inch metal screen or curtain is installed in the top front of the booth to act as a deflector for the sprinkler heads, thus throwing their spray, in case of fire, directly on the flame and protecting the room outside with a sheet of water. Lighting is accomplished by reflectors attached to the top front of the booth. These can be arranged to focus the light on the work in any portion of the booth, or to flood-light the entire interior.

The fans are belt driven by individual motors located outside

Pale Kauri Kote

"The Lacquer with a varnish plumpness"

Speed, toughness, non-printing and water-resistance have been the big selling points for lacquers.

Lack of body on the wood and little plumpness to the finish have been drawbacks to the use of lacquers.

Our years of experience in handling gums enabled us by a special process to work into our lacquer Pale Hard Kauri Gum.

Send for free working sample of Pale Kauri Kote, and full instructions will be given to enable you to produce a lacquer finish with a varnish-like plumpness.

Makers of varnishes and lacquers since 1890

Louisville Varnish Company
Incorporated
Louisville, Kentucky

the exhaust duct. They are mounted on substantial brackets which are adjustable for tightening the belt. The belt is completely protected by an enclosed, vapor-tight, metal casing automatically cooled by a current of air induced by the belt, thus preventing any possibility of heating.

Lubrication of motor and fan bearings is easily accomplished by means of cups outside the exhaust duct. Fan bearings are completely protected by a metal housing and are equipped with a stuffing box packing for the shaft at the front bearing plate.

Two sizes of fans are furnished —a 17½-in. size equipped with ¼-h. p. motor for use with the smaller size booths and a 24-in. size with 1-h. p. motor for larger booths. Motors are available for use with any kind of electric current. All direct current and single phase alternating current motors are totally enclosed.

Fan blades are of non-sparking metal, of high strength aluminum alloy on the 1-h. p. size and of brass on the ¼-h. p. size.

Solving Modern Problems

Users of finishes will save time and expense and worry by laying their problems before manufacturers of finishes who maintain laboratories and technical experts for this purpose

By J. C. Hertstein, Jr.

IN the finishing of furniture and various kinds of wood products, we are confronted with the fact that it is almost impossible for one man to learn all about the many finishes used today. There are so many different ways of finishing furniture that we really need to refer to books and periodicals when in need of various formulas.

Now, I do not want my readers to put me down as a final authority on any subject, particularly this vast and great industry of finishing, and I have no fear that those who have read any of my expressions will do so. However, I have centered my investigations and thoughts upon the importance of improving the co-operation between foreman finishers and manufacturers of finishing materials. To me, this matter represents itself as one of importance.

Let Experts Do It

Allow me to briefly tell you about a very progressive foreman finisher with whom I am acquainted.

This finisher is often called upon to match colors in enamel, sometimes colors that he has never before seen. As soon as he gets a new color problem he immediately telephones for the salesman, representing the finishing house with whom he does business. The problem is turned over to the finish manufacturer, and in a modern laboratory specialized technical experts are able to match this color in a very short time.

Whether the order placed for this material amounts to one gallon, or whether it amounts to 100 gallons makes no difference to the finishing house. This is part of the service they offer and I do

not believe I am over-stepping my bounds when I say that the advertisers in this trade journal, many of them with whom I am acquainted, are glad to render this same kind of service to finisher foremen.

The question now arises as to the reason for turning all such problems over to the manufacturer of finishing materials. In the first place, very few finishing rooms that I have ever visited are equipped to do all of this kind of experimental work. Sometimes a foreman finisher spends hours and hours of valuable time working out problems that most finishing houses could work out in just a short while.

No Reflection on Finisher

Sometimes the finisher has an idea that it is a reflection upon his ability if he turns over these various problems to any manufacturer to solve, but I believe he has the wrong idea.

As a matter of fact, many finishing-room supply houses are even willing to send their representatives into the finishing room and finish all of the new samples for a finishing foreman. They are often able to offer new ideas, things that few finishers ever think of.

We are living in an age of co-operation, and I do not know of a better way to create closer co-operation than to accept this service which manufacturers of varnishes, paints, stains, fillers and lacquers are so freely offering.

I am sure that I express the feeling of them all when I say they want to help you finishers all they can, and I have known of a case where a concern spent nearly $1,000 to help a finisher foreman and never profited in any way from it thereafter.

In conclusion let me say to all of our finishing foreman friends, do not waste valuable hours in trying to solve problems that any reliable finishing-material manufacturer will gladly work out in short order. Accept his co-operation, work with him closer than you have ever done before, and see if he does not help you to lower the cost of operating your department.

The Real Fire Danger

There really is no more danger in the use of modern lacquer materials than in the use of paint and varnish materials. The real danger lies in the alternate use of the two kinds of material.

The dangers that exist can be practically eliminated by using extreme caution in keeping the finishing premises clean at all times. The use of one of the safety cabinets that are on the market for the storage of lacquer materials will insure against fire starting in the thinners and raw materials in storage—or in daily use.

These safety cabinets have a compartment for five gallon cans, and one for one gallon cans as well as a collapsible shelf on which materials can be mixed. The walls are made in accordance with the recommendations of the underwriters.

For Gold, Silver or Brass

No. 82 Water White Lacquer

Gives Exceptional Value

We have manufactured lacquers for all finishes since 1857

Chas. Cooper & Co.

90 Worth St., New York

Works—Newark, N. J.

Industrial Finishing

PRACTICAL PUBLICATIONS, Inc.
Publishers
Room 603, 222 E. Ohio St.
Indianapolis, Ind.

Issued monthly. Distributed exclusively to executives and foremen finishers in all kinds of industrial plants where finish coats are applied.

JANUARY, 1926

Nineteen Twenty-Six

Few of us realized, until after it was all over, that during 1925 we were living in one of the big industrial years of history—a year in which many production and sales records were broken. The usual crop of favorable forecasts for 1926 have appeared in numerous publications and now we are living in anticipation of what the new year really holds in store.

The situation for 1926 was well summed up in a closing paragraph of an article in *The Industrial Digest* for December which said, "As we see the coming year, it will be a period of sustained activity in manufacturing and trade, with substantial gains in export sales and the application of more and more intensive sales methods at home, which may develop dangerous characteristics before the year is over."

The "dangerous characteristics" referred to possible and perhaps probable over expansion of the partial-payment and deferred-payment sales methods, which are being more and more resorted to as a means of moving larger quantities of goods into the possession of buyers. When over enthusiasm and over confidence get the better of sound business judgment, we are skating on thin ice.

Better Materials—Improved Methods

Chemists and scientists have taken the place of the plain color maker and paint mixer. Improved machinery, mechanical devices and chemical apparatus are now aiding in the wonderful improvement in the production of paints and finishing materials. The last 25 years in particular are marked by great forward strides and we may say that we are only at the threshold of future possibilities.

The present effort of manufacturers is to produce higher grades of materials, as quality is the first consideration; price is based on supply and demand. The cost of labor against materials used, is so much out of proportion that it is considered a folly to spend $10.00 for applying 50c worth of material. The finisher is interested in this idea, for the reason of producing a more permanent job by more careful application of higher grades of material.

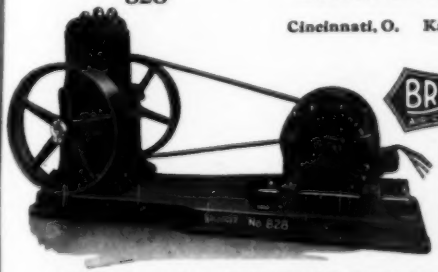
More Auto Refinishing in 1926

Now is the time for automobile refinishers to begin making plans for what will unquestionably be their best year up to 1927, in point of volume business. That this anticipation may be expected, is borne out by several contributing factors.

Last year was, so far, the greatest twelve months in production and sales of motor cars, motor trucks and motor buses. In these new motor vehicles, more color, aside from black, appeared than ever before.

BRUNNER MODEL 500 Spray Gun

BRUNNER MODEL Assembled Unit 828



Year after year, the Brunner reputation for dependability and low operating cost becomes more firmly imbedded in the minds of its users.

In a paint shop, the compressor above all else, must be capable of continuous operation—breakdowns mean dissatisfied customers and lost profits.

This idea of dependability is now a 20 year old practice at the Brunner factory. In the drafting room—the laboratory—and the production line, every effort is made to maintain Brunner quality.

Brunner Paint Spraying equipment is the result of the same care and precision in manufacture. The spray guns shown here are the most improved design. The No. 500 model is especially adapted for spraying the lacquer finishes.

Mail the coupon for our paint spraying equipment folder.

BRUNNER MANUFACTURING CO.
UTICA, N. Y.

Cincinnati, O. Kansas City, Mo. Toronto, Can. San Francisco, Cal.

BRUNNER

Brunner Mfg. Co., Utica, N. Y.
Please send me your paint spraying equipment folder.
Name.....
Address.....

The materials, the equipment and the methods for lacquer refinishing to agree with virgin lacquer finishing on new cars, have been greatly improved and their use greatly extended to meet the demand of more customers who have acquired better tastes and greater buying power.

In the face of these known conditions, it is certain that more motor vehicles, which are beginning to bear the marks of usage and traces of shabbiness, are going to be dressed up with new coats of finish to give them a decent, if not in fact a smart appearance as they mingle on streets and roads and public garages with an ever increasing number of the latest models.

Motor car refinishers must be prepared not only to clean surfaces and put on the broad fields of solid color, but also to do two-toning and striping, and to refinish the interior woodwork in high-grade natural finishes of enduring beauty.

Keep Up Interest in Varnish

While much interest has been aroused and much progress made in finishes other than varnish, modern finishers must not take this to mean that all varnishes, shellacs and paints are out of date and soon to be placed on the shelf everywhere. Lacquers and complete lacquer systems have seen remarkable development; they have taken an important place in industry and their use is rapidly increasing, but this doesn't necessarily imply that a finish of such proven beauty and durability as varnish is going to be entirely dispensed with.

Other materials have been added to give a welcome and much needed variety to the list of finish coatings available for modern usage. Varnishes never entirely replaced paints, stains, shellacs, substitute shellacs, waxes, etc., as final finishing coats on woodwork, although they did become the most popular and the most used finishing material for high-grade wood finishing.

Enormous quantities of varnish are still being used by manufacturing plants and by interior finishers, and so long as varnish is used, finishers must keep themselves informed regarding its characteristics and the problems and requirements involved in preparing surfaces for varnish coats, and in applying, drying and rubbing varnishes.

Some of the causes of the defect known as "orange-peel effect" have been charged to use of the wrong spray nozzle. Some of them, however, are due to the lacquer formula and the improper use of high boiling solvents. Possibly the wrong ones were used. At any rate, the proper use of solvents has much to do with reducing the "orange-peel effect" and it is now certain that not all the trouble once attributed to the spray gun was justified.

New solvents are coming into the market and into favor right along. Among these are diethyl carbonate, which the manufacturers of alcohol have contributed to the lacquer industry. Butyl propionate is another. It evaporates more slowly than butyl acetate. This causes it to increase the flowing of the lacquer which means that the resultant film will be smooth, tough and coherent.

FIVE

airbrushes in one

The Amazing

PAASCHE MULTIPLEHEAD AIRBRUSH

The new Multiplehead Airbrush has a spraying range equal to five other airbrushes—five spraying devices.

The only one of its kind. Does all work and does it better. Quick detachable—revolving—floating—adjustable. Cannot leak. Takes a minute to clean. Lasts a lifetime. Five airbrushes for the price of one. No wonder everyone buys it. Use it for finishing and coating materials of every description. Send the coupon for full information and prices.

PAASCHE AIRBRUSH COMPANY

1921 Diversey Parkway—CHICAGO, ILLINOIS

New York
54 Dey Street

Detroit
233 General Motors Bldg.

Cleveland
418 Perry Pane Bldg.

Los Angeles
411 Douglas Bldg.

Toronto
529 Ossington Street

PAASCHE AIRBRUSH COMPANY, 1921 Diversey Parkway, Chicago.
Please send me free information and prices. I want to paint with—

☐ Paints ☐ Enamels ☐ Lacquers ☐ Varnishes ☐ Bronze

Name your products.....
Are you using an airbrush?.....
Have you an air compressor?.....
Have you an air conditioner?.....
Name.....
Address.....

English Cars Lacquered

Among the striking changes to be noted in the appearance of automobiles at the last Olympia Motor Exhibition in London, England, says "Motor Body Building," a notable feature was the frequent adoption of the new system of finishing cars or what may justly be termed high-speed painting by the pyroxylin, nitrocellulose or lacquer process. In the conventional form of coach painting, with brilliant lustrous finish, which had been followed on 90 per cent. of the cars exhibited, the colors mostly in vogue were lakes, browns and grays, all toned and unified to make varieties of shades, although a pale apple green, a pale blue and several shades of brilliant yellows, lemon and chrome were conspicuous contrasts.

Judging by appearances, the quiet and unobtrusive colorings in dark shades, as well as in black, judiciously fine lined, have their supporters as some excellent examples of this style of painting were shown on some of the closed bodies.

The granite style was used for a number of cars, sometimes in a combination of colors or as in one instance with the body sides in a blue granite and the top moldings and back in dull granite aluminum, which would have had a much better effect if it had had an extra coat of varnish to obtain a sparkling finish. Some sporting models were finished entirely in scratched or curled aluminum, then varnished.

There were several examples of graining the body and its appendages in dark walnut and gray oak in the mat finish, as seen on the Barker bodies, which we were given to understand had extremely good wearing qualities and certainly had a smart appearance.

Decorative styles of painting were few in number. On a Beadle closed body the belt rail was sham caned. On the Vincent saloon the whole of the lower quarter panels was painted in imitation canework on a red ground color.

Several bodies were shown in dark walnut and mahogany grain, painted by the new cellulose process, notably a touring body by Gurney-Nutting, while the Beadle saloon was cellulose finished in brown and black. On the Laffley stand, a semi-mat wood grain finish was obtained by what is known as the Millard system of coach painting, in which a departure is made from conventional color schemes and by a most economical process the figured grain of mahogany and walnut is produced.

The interior fitments of a combination of choice woods such as walnut, mahogany, sycamore, etc., inlaid, stained or fumed, harmonized with the upholstery, and it was noticeable that many of the companions and combination cases were not only made veneered in wood to match, but were shaped and fitted to have the appearance of being built into the body side, uniform with other fancy receptacles.

Finishing Zinc Castings

Zinc castings are very difficult to finish because of an apparent greasy surface condition, which does not allow the finishing material to stick tightly. One company is following the procedure given below:

The castings are first hung in a hot caustic solution consisting

NEWCOMB
SYPHON VENTILATED CABINET

ONE of our latest and best developments is the fan with direct connected motor, independent of booth, with rear of booth fitted with Reclaiming Chamber and Baffle Doors.

Wherever spraying or airbrushing is done with shellac, paint, stain, enamel, lacquer or varnish, this installation will effect an appreciable saving in operating costs, make impossible clogging of the fan and eliminate a fire risk.

Grand Rapids Blow Pipe and Dust Arrester Company

Dust Collecting Systems 527 Monroe Ave. Grand Rapids, Michigan

"Eliminate a Fire Risk"

of one pound of caustic to five gallons of water. While in this solution a current of electricity is passed through the casting by connecting a live wire to the rod on which the casting is hung. The other wire is connected with an electrode suspended in the alkali bath, so as to form an electrical connection.

After coming out of this bath, the castings are dipped into clean water, then into a tank containing a mixture of one-third commercial nitric acid and two-thirds commercial sulphuric acid. After remaining momentarily in the acid bath, the castings are dipped again in clean water and immediately scrubbed with a stiff brush and pumice stone.—S. H. L.

Bird's Eye Effect

To produce a good bird's eye effect on straight-grained hardwood, begin by filling the birch or maple; then, after the filler is dry and the surface has been cleaned, apply with a soft rag a coat of oil, and wipe dry. This prepares the surface for the next operation.

Now prepare the following finishing material: Reduce raw sienna (1-lb.) ground in japan, to thin paste form with turpentine; add ¼-oz. of medium chrome yellow and ½-oz. of burned sienna. Reduce again with turpentine to a medium coating paint.

Now apply this mixture with a small sponge to the surface in a way to imitate a bird's eye maple. Next is a coat of white shellac; then sandpaper. After all dust is removed, a fine blending with burnt umber by air brush in corners, wood turnings, carvings, etc., will bring a wonderful effect. Another coat of shellac must be applied and then the finishing or lacquering and rubbing process follows in its regular course.—R. N. W. von Lindau.

Coating Brass to Prevent Tarnish

Large quantities of cheap brass goods, such as thin solid brass and brass-plated hardware and fixtures are now on the market. If not protected from the air by some means, the surfaces of these articles will tarnish and become black. Many cheap drawer-pulls of this type tarnish in a very short time because they are not protected from the air.

The better class of goods of this kind are protected by a specially prepared lacquer, but frequently this lacquer is considered too expensive for the cheaper class of plated goods. A good protection for plated brass-ware is made by dissolving 2-oz. of bleached shellac in one gallon of methylated spirits of alcohol, or in the same quantity wood alcohol. This shellac is colorless and will not change the appearance of the burnished brass.

Orange or unbleached shellac may be used without materially changing the appearance of the finish on the brass. More than 2-oz. of shellac gum to a gallon of solvent may be used, and the heavier the solution the better the protection, but it must be thin enough to drip off the surfaces without leaving a sag. A slight raw edge, of course, is not a serious matter on cheap goods, as it would be very slight at the most, unless the shellac were very thick.

After the shellac gum is dissolved it should be strained through a very fine strainer. Cheap paper-and-cloth strainers are now made in various meshes,

Matthews New Finisher's Gun

A fast Gun that Cuts Costs

In response to the insistent demands for a better gun in the finishing field, Matthews Engineers have developed this new Finisher's Gun. It is made to handle finishing materials; it is faster, applies these materials better, and lowers the cost of application. A few of its many improvements and advantages are:

One Nozzle and one sleeve for all operations.
Handles both primers and finishes.
Applies a uniform wet coat.
Thoroughly atomizes all materials.
Light in weight and very fast.
Applies materials in fan or conical shape.
Can be used on volume or jar feed.

Let us show you how this new gun will enable you to produce a better finish and lower the cost of application. Write today for descriptive bulletin on this New Type L Matthews Finisher's Gun.

W. N. Matthews Corporation
3724 Forest Park Blvd. St. Louis, U. S. A.

MATTHEWS MECHANICAL PAINTING EQUIPMENT

and every finisher should be supplied with these. The goods to be dipped in this thin shellac should be heated to a temperature of approximately 100-degs.F., to hasten the evaporation of the solvent and cause the remaining film to dry more readily.—L. C. K.

New Finish Materials

Some new finishing materials of interest to finishers of wood and metal products and refinishers of automobiles, have been developed by the Royalin Flexible Lacquer Company, Inc., Long Island City, N. Y., according to a recent announcement. These include a "sanding metal surfacer," a product called "Anteek Chek," and a "sanding buffer coat."

The "sanding metal surfacer," not only fills and sands readily, but because of its excellent adhesion to aluminum, brass, steel and white metal, does not require the use of any primer.

The Anteek Chek, when sprayed over clear lacquer, checks in imitation of an old checked varnish finish. Very novel effects may be obtained with the use of this same material by incorporating various colored bronze powders.

The "sanding buffer coat" is designed especially to be sprayed onto old painted or varnished surfaces (after same have first been given a dry, coarse sanding) to provide a satisfactory base or sealer on which succeeding lacquer coats may be applied. This coat dries to the touch in about one hour, and about two hours later it can be dry or wet sanded to a smooth finish. When lacquer coats are applied over this sealer, it is claimed the final job has the appearance of being an all-lacquer job from the clean metal or clean wood outward.

Wet Sanding Practice

Only a short time ago—so short a time, in fact, that most of the newest automobile finishers can recall it—water could not be used with sandpaper. Water, which would have lubricated the cutting of the tiny sharp crystals and rid the sanding occupation of its dust, also dissolved the glue that held the crystals to the paper. So, in lieu of a better way of producing these results, finishers resorted to the use of oils.

The difficulty of entirely removing traces of oil was one of the handicaps to its permanent acceptance, and in 1920 a water resisting sandpaper, marketed under the trade name "Wetordry," found a ready welcome. Its continued success has involved, among other things, a change of finishing methods in many establishments in some of the major industries, especially that of the automobile industry.

Several automobile factories and refinishing shops have adopted water sanding for most of their finishing operations. The cleanness and speed of the new sandpaper has helped to give better health conditions and cleaner finishes for the automobile industry.

Spray Gun Nozzle for Stain Blending and Shading

Present day spray equipment embodying new nozzle sizes and leaning towards the newly created requirements of the finishing room, have influenced the development of a new nozzle construction for the standard type of production spray gun.

Economy Necessitates a KELLOGG

Regardless of what type of brush you may buy for your spray painting, specify Kellogg Compressors.

Kellogg's are backed by twenty-five years specialization in air compression. They pump more air and less oil.

An actual comparison with other compressors will impress you with Kellogg's undisputed superiority.

Illustrated literature on request

Kellogg Manufacturing Company

Rochester, N. Y.

⅜ to 10 horse power and 1 to 60 cubic feet of air.

The shading and blending of stains is becoming more popular every day, particularly where walnut and mahogany are used in the furniture and woodworking industries. High-lighting effects, to bring forth the beauty of the natural wood grain, can be obtained in production best with a spray gun specially designed for use in the factory, creating a uniformity of color and finish.

The small artists' spray or air-brush is being used less and less in the finishing room. Spray guns today are constructed along scientific lines of atomization and this must be seriously considered when spraying stains.

A spray gun must fog this stain to a point where its degree of penetration can be varied to produce the desired effect or shade. A syphon feed container or cup of one pint or one quart capacity is most adaptable for this work.

Among the many advantages the finishing room obtains with the use of a standard model spray gun for this work, are fewer repairs, uniform results and greater dependability.—M. Sullivan.

Electric Release for Dip Tanks

Fires in dip tanks, japanning rooms, oil storage rooms, etc., are extremely dangerous even in the best sprinklered buildings. Water here sometimes serves not to put out the fire but to spread burning liquid throughout the plant. In many cases a few fire sentinels and an electric release on dip tank covers to instantly close them in case of fire are all that is necessary. For other cases where such hazards are more extensive, adequate protection demands special treatment.

For example: Large dip tanks, when properly protected, are equipped with quick opening valves, installed in the drain pipe of each tank. These valves are connected to releases which in turn are operated by fire sentinels placed above the tanks.

In case of fire the sentinels at once operate the releases, causing immediate opening of the valves, which allows the blazing liquid to flow through the pipes to an underground closed steel tank out of doors where it is safe.

Buckets filled with sand should always be accessible. Sand is a very good oil extinguisher and prevents the spread or flow of oil. —Associated Mutual Lumber Fire Insurance Cos.

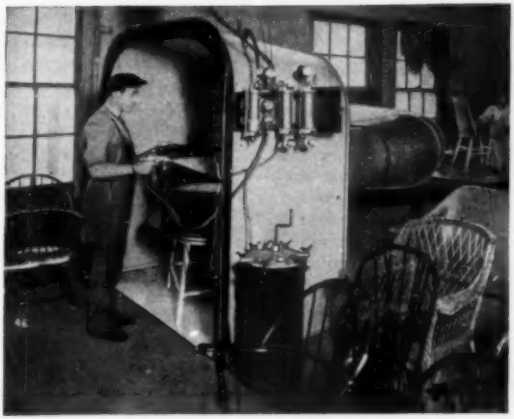
Spray Is Widely Used

Spraying machines are not only used now for applying finishing coats to large plain surfaces, but in all industrial and manufacturing plants. The objects coated by spraying are too numerous to mention. The present up to date painter, and yea, the decorator, makes use of spraying machines.

Ask your competitor and you will be surprised how far some are advanced and are making extra profit by using the gun instead of the brush. Sizing, flat coating, calcimining, varnishing, blending and other work are done successfully today with the aid of spraying machines. The time is not far ahead when a paint shop without a spraying machine will be like an automobile without wheels.

Enthusiasm is one of the greatest assets in the world. It is nothing more or less than faith in action.

Peerless Systems



SATISFACTORY finishes can only be produced with properly designed spray equipment. The PEERLESS SYSTEMS has established an unparalleled reputation for not only speed and economy of operation, but also an unequaled quality of finishes.

The PEERLESS SYSTEMS consists of the most up-to-date equipment, designed from a practical standpoint, both as to the application of the materials and the economy of operation.

Complete information will be furnished upon request.

Write for Literature—New Bulletin No. 25A

Peerless Pneumatic Systems, Inc.

Manufacturers of Complete Spray Finishing and Painting Equipment

118 North Jefferson Street CHICAGO, ILL.

Questions and Answers

This service department is conducted to meet the readers' need for prompt information on specific problems, and to give others an opportunity to review the questions and to offer comments, suggestions or answers

Finish Inside a Yacht

We have a proposition to finish some American walnut in wax, on a yacht we are building. We have made up a couple of sample panels with ordinary commercial or English wax and linseed oil but we find that rain water, and no doubt salt water, produces white spots wherever it splashes on the woodwork.

This, of course, is absolutely impractical for a yacht finish and we are writing to find out if you can recommend any special wax or wax finish that will withstand this action. Of course the wood is not subject to direct contact with the water but merely what might splash in through a window during a heavy rain storm or spray that might be blown aboard.—L. M. C. Co.

Filler Stain for Lacquer

Can you give us a filler stain for finishing piano work in lacquer?—B. & S. Pty. Ltd., Melbourne, Australia.

The only changes in filler and stain for use under a lacquer, as against varnish, has been first the elimination of lake colors in the filler to prevent bleeding, and the necessity for letting the filler dry thoroughly hard before the lacquer is applied. Otherwise the solvents of the lacquer bleed the filler color or soften it in the pores to a point where a grayish cast results.

With respect to stains, water stains have proved preferable to oil stains, unless the latter be of the asphaltum variety. Any water stain may be used regardless of color, and it need only be given full time to dry.

For the general finishing method with lacquer we would refer you to the following issues, providing you have them on hand, and incidentally would state that, for piano work, it is generally the practice in this country to build up with lacquer by applying at least one finishing coat of varnish in order to obtain the necessary depth and brilliance of finish.

Refer to page 58, November, 1924; page 29, December, 1924; page 29, January; page 14, February; page 7, April; page 19, September; page 21, October.—I. F.

High-Lighting Brown Birdseye

Can you give us the process for making a high-lighted soft brown finish on birdseye maple veneered furniture, shading from an almost natural birdseye maple to a soft brown walnut color? For your information would state we desire to use an oil base finish.—A. H. H. & Co.

The only question in connection with the use of oil stain on maple lies in its ability to penetrate, and only actual experiment will determine this. Any standard American walnut will serve the

PEGEX Pyroxylin Lacquer Finishes retain their satiny luster indefinitely. They dry in 66% less time than ordinary finishes—an important economic factor.

PEGEX is exceedingly hard, assuring amazing durability. It withstands extremes of cold and heat; will not crack, check, peel, craze, or print.

Furniture manufacturers base their increasing use of PEGEX on its proven ability to *make good under all conditions.* *Send for PEGEX Booklet Today*

PEASLEE-GAULBERT CO., *Incorporated*
LOUISVILLE, KY.

Pegex

SMITH'S

ESCOLAC

TRADE MARK

TRUE MERIT IS NOT BASED ON CLAIMS

Printed or spoken claims of quality do not make lacquer better than actual tests prove it to be.

If we were not sure of the quality of ESCOLAC we would not ask you to make competitive tests and offer to furnish you FREE of ALL CHARGES our lacquer to test in comparison with any others.

Try ESCOLAC for Silver, Brass, etc. A weather test of three months should prove interesting.

Send for samples and instructions for making accelerated ageing tests.

EDWARD SMITH & CO.

West Ave., 6th and 7th Sts. — — LONG ISLAND CITY, N. Y.

purpose as to color, but it may be toned with oil soluble red, black or yellow anilines according to the tone desired.

The stain should be brushed on evenly all over; then wiped off from the center with a clean muslin rag. Then to graduate the shade softly from light to dark, blend the edges together with a regular badger hair blender.

The work also may be done by spraying, but either way a little practice will make the process familiar.—I. F.

Steam Bending Stains

We will appreciate some information from you in the matter of elimination of stain in steam bending birch. The birch, before bending, is placed in a steam retort under pressure of approximately 30-lbs. A certain amount of discoloration occurs here which, on light shades of finishing, creates difficulty in matching. If you can be of any assistance to us in this connection, we will be grateful.—E. H. S. Mfg. Co.

Lacquering Metal Panels

Our main concern is lacquering over the metal panels of motor bodies, which have previously been treated with special foundation undercoats.

As you are more advanced in the knowledge of lacquer finish than we in Australia, any information that you can supply in this direction will be greatly appreciated.—Holden's Motor Body Builders, Ltd.

As you do not give the nature of the special foundation undercoats, we are unable to advise definitely as to whether lacquer enamel can successfully be used over them.

The system in this country generally calls for an oil primer next to the metal, followed by as many coats of oil sanding surfacer as may be necessary. Then spot glazing where required, lacquer enamel ground color, and lacquer enamels themselves, the last being rubbed down and polished. Striping or lettering follows the last operation, lacquer enamel with special reducer being used for the purpose and without any clear finish coat over it. Clear lacquer has not yet been developed to a point where it is safe to use on work subjected to exposure.

For more detailed information as to the process we suggest that you consult our lacquer advertisers and, if you have back copies of our publication, refer to the following 1925 issues: January, page 35; March, page 16; May, page 9; May, page 13; July, page 10; August, page 17; September, page 30; and October, page 10.—I. F.

Finishing Hickory Handles

We manufacture hickory mallets and handles, and our problem is to find the best method of finishing. We have a satisfactory method for mallets, using wax and a tumbler, but we are not satisfied with our handle finish.

We have been using belts on which we use paraffine wax. This is a cheap method, and for most trade it is satisfactory. But we want a harder finish, and a more lasting one—one that will not get soiled too quickly.

We have tried a substitute for shellac. This makes a nice fin-

NEW No. 136

THREE VITAL QUESTIONS:

How will it improve your finish?
How will it hasten your output?
How much will it reduce costs?

If you will write us we will give you the benefit of our experience in industrial finishing problems.

The Thibaut & Walker Co.

MANUFACTURERS
Varnishes, Air Drying and Baking Enamels
Black Baking Japans
72-76 NINTH ST., LONG ISLAND CITY, N. Y.

Announcement

H. E. MAYNARD

who has been connected with the plating and lacquering industries for the past twenty years is now associated with this company in the capacity of sales manager.

* * *

Mr. Maynard is in a position to give the same high grade service that he has rendered to the trade in the past.

* * *

Dr. Henry V. Walker, the well known lacquer expert, is the president and general manager of this company. All lacquers will be made directly under his supervision.

* * *

DR. WALKER
and
MR. MAYNARD
and staff are
at your service

LACQUERS
AND
LACQUER ENAMELS

BEST OBTAINABLE

For Any Article Requiring a Durable Finish

Metal, Wood or Composition
Automotive & Other Trades

WE SOLICIT YOUR INQUIRIES
Write Now!

The Miner Edgar Co.

110 WILLIAM STREET
NEW YORK, N. Y.

Kindly mention INDUSTRIAL FINISHING when writing advertisers

ish but it also has its disadvantages. It seems to leave the handles streaked. Whether this is the fault of the fine sand belt or of the finishing belt, we can not tell.

Can you give us any information about a wax that could be used satisfactorily? Some companies mix paraffine with certain other ingredients, which seems to be all right. Some use rosin, some use beeswax, and we have even heard of using white lead. Do you know of anything that could be used for this purpose, and which would not be too expensive? Perhaps you can give us the proportions to use.—W. H. W. Co.

Quite a satisfactory finish on hickory handles can be obtained by dipping one or two coats of either clear lacquer or clear substitute shellac, the preference being for the clear handle lacquer, because it is tougher and gives a more water-proof, harder finish that does not easily wear off nor collect dirt. Either of these materials can be applied by dipping, allowing the handles to drain so that the excess material runs off at the end which is inserted in the metal.

We are inclined to feel that your streaking trouble is due either to your sandpaper leaving scratches in the wood, or to your finishing belt—which we infer from your letter is the belt on which you buff the work after it is finished, creating so much friction as to burn the finish in spots.

With proper shellac substitutes or clear handle lacquer, it should not be necessary to do any buffing at all for ordinary work, although of course a higher luster can be obtained by buffing.

One coat of clear handle lacquer of the proper construction will give quite satisfactory results on perfectly smooth wood, but of course a little better finish can be obtained by the use of two coats.—I. F.

Italian Oak Finish

Can you help us to duplicate the finish on sample we are sending? It is called "Italian Oak" (very dark with flake showing light) and is evidently a finish obtained by some special process. —E. B. G., Oregon.

Any manufacturer of stains can duplicate the finish shown on your panel, which appears to have been given a coat of brown aniline water stain, followed by a wash coat of shellac, then filled with natural paste wood filler, shellaced again full body and waxed. It is similar to a silver gray oak finish, but with a deep brown rather than a gray stain, and a natural instead of a white filler.—I. F.

The Italian oak finish, as shown by the small piece of finished veneer can be produced by staining the oak with Italian oak stain made by dissolving three or four ounces of Italian water soluble powder stain in one gallon of warm water. The stain should be allowed to cool before applying to the oak by brushing.

Let the stain dry overnight and then apply a wash coat of white shellac made by reducing one part of 4-lb. cut white shellac with seven or eight parts denatured alcohol. Let this stand five hours to dry, then sand smooth and fill the work with Italian oak

GOOD GOODS
PROPER PRICES
SPLENDID SERVICE

PASTE WOOD FILLER — **SPIRIT STAINS**
LIQUID WOOD FILLER — **WATER STAINS**
CRACK & CREVICE COMPOUND — **OIL STAINS**
FIRST COATERS — **STAIN POWDERS**
BRONZING LIQUIDS

Let us match the materials you use and submit counter samples without cost or obligation

KROEGER BROS.

Manufacturers Since 1887

882 McKIM ST. BALTIMORE, MD.

filler, which is a wood filler containing a small amount of yellow coloring matter.

The filler comes in paste form and should be reduced with naphtha or turpentine to a creamy consistency and brushed all over the work. After it has stood about 15 or 20 minutes it should be wiped across the grain of the wood with burlap, hemp, tow or old rags, finishing the work by wiping over lightly with the grain of the wood, using clean cloths, and being careful not to pull the filler out of the pores.

The filler should dry over night. Then a coat of shellac made by reducing a 4-lb. cut shellac equal parts with denatured alcohol, should be applied. This shellac coat should be allowed to dry over night and then be sanded smooth, after which the work should be waxed with ordinary floor wax or furniture wax.—E. E. Orreingson.

Stippling Lacquer and Paste

We notice an article in the November issue of INDUSTRIAL FINISHING by R. L. Masterson, and would like to know something more about the stippling lacquer and the proper gun that is used. —A.F.&S.Co.

There are two grades of this stipple lacquer, one being known as sharp, and the other as smooth, according to the effect on the work. Either of these materials is applied with a spray gun, full body, or with only a very small amount of reduction with lacquer reducer.

Any spray gun may be used for this purpose, provided all of the air is shut off of the horns which produce fan shape on the sprayed stream of paint or lacquer, and providing the air pressure on the nozzle of the gun is reduced down quite low, say at least 20 pounds to the square inch, and the larger opening in the spray nozzle is used.

This allows the lacquer to be spattered onto the surfaces in small lumps, instead of being broken into a fine mist. A little better results will be secured if a gravity-feed container or pressure-feed container is used to hold the material, than if a suction type gun is used. The stipple lacquer is quite heavy in body and a larger quantity of it will be available at the spray nozzle when it is under a slight pressure, either from gravity feed or from air pressure in the container.

Some spray equipment concerns make a pressure cup container which allows a certain amount of air pressure to be exerted on the material in the cup.

There is also a stipple paste (an entirely different material) which is a paint product that can be applied by brushing, and while wet stippled with a rag, sponge or a stiff-bristle brush, to produce any type of roughened effect, according to the success of the coating and the method of stippling it.

After the paste has dried over night, it should be sanded lightly to knock off the sharp corners of the stipple, after which it can be coated over with bronze powders and color lacquer to any shade of lacquer enamel.

The stipple lacquers referred to above, however, can only be applied by spraying. They have the advantage of drying within one or two hours, when the surface can be recoated. Either type

OUR PUMICE STONE MILL

On the Hudson River at 48th St., New York City

American Ground Italian Pumice

POWDERED ROTTEN STONE

POLISHING POWDERS

POLISHING FELTS
RUBBING FELTS
CUT FELTS

SUPERFINE RED ROUGE

BONE DRY MAGNETIC
BLACK ROUGE

K. F. GRIFFITHS & CO., Inc.

110 East 42nd Street, New York, N. Y.

1816 CHEMICALS *1926*

"Over a Century of Service and Progress"

BUTYL PROPIONATE

The Most Economical "High Boiler" for Lacquers

Manufactured by the Wilbur White Chemical Co.

Sole Selling Agents

INNIS, SPEIDEN & CO.

INCORPORATED

48 CLIFF STREET NEW YORK

BRANCH OFFICES:

Chicago Philadelphia Boston Cleveland Gloversville, N. Y.

of material will stick tenaciously to any metal, wood, paper or composition surface.—R.L.Masterson.

Finishing Metal Toys

We are manufacturing toys in which the question of finishing enters largely. During the past summer, we encountered many difficulties in this respect, due to the fact that we could not get paint which would dry either by air-drying, or baking. With this thought in mind, it is possible that we could get some valuable suggestions from INDUSTRIAL FINISHING.—M. Mfg. Co.

One of the large producers of metal toys, ranging from the smaller articles up to toy automobiles in which children ride, has been using baking enamels for approximately two years, with a great deal of satisfaction. This particular line of toys shows an excellent finish. The company has been able to accomplish results with only one coat over the bare metal, applied by dipping. The enamel, after being allowed to drain about 15 minutes is baked for 2½ to 3 hours at 100 degrees F.

This one coat covers the metal solidly, drains off free without runs or sags, bakes hard in the above time, and gives a glossy, durable finish that will stand considerable outside exposure.

There are fourteen standard shades of color in this particular line of baking toy enamels, including a yellow, orange, two shades of brown, three shades of gray, two shades of red, three shades of green, and two shades of blue, in addition to black and white. They take about ten per cent reduction with a special reducer that maintains the luster. If it is not desired to bake this finish it will air dry over night to permit handling next day.

In addition to this line of baking toy enamels there are a great many shades of one-coat dipping-lacquer enamels, which take a reduction of about three parts of lacquer to one part of lacquer reducer for dipping. The material covers solidly in one coat and dries in one to two hours to a good luster.—Fred Girard.

Ash Refrigerator Finishing

We would like to know if you could suggest a way to thoroughly fill the grain of ash and oak, so that it is possible to give it a white enamel finish and have a smooth surface when the job is completed.

We manufacture a considerable quantity of refrigerators, and while we used to make them both of ash and birch, we found that the demand for birch fell off and the demand for ash increased in proportion. At the same time orders for white enamel finish did not decrease, but as they are always an uncertain quantity, we wish to confine ourselves to ash only. We want to be able to furnish white enamel finish without having to manufacture refrigerators in two woods. This also applies in a lesser degree to our kitchen cabinets, which are made of oak and also on which we wish to apply a white enamel finish.—R. R. Co.

Fill the ash with natural paste wood filler, reducing with benzine to a creamy consistency; then brush on with the grain. When the luster has flattened, in about 15 or 20 minutes, wipe off

Announcing the 8th Year of Successful Specialization

Since 1917 our entire Factory and Laboratories have specialized in the manufacture of Wood and Metal Lacquers & Spirit Varnishes exclusively.

Concentrated effort and research in the manufacture of these particular items has resulted in *Lasco Perfection*, and at the present stage of our business we are successfully serving the largest and most critical users of these products in this country.

In conjunction with the specialized manufacture of these finishes, we maintain a Service Department, comprised of experts in their special field. This service is always at your disposal.

The LASCO SHELLAC & LACQUER CO.
Baltimore Maryland.

ERBY SPRAY

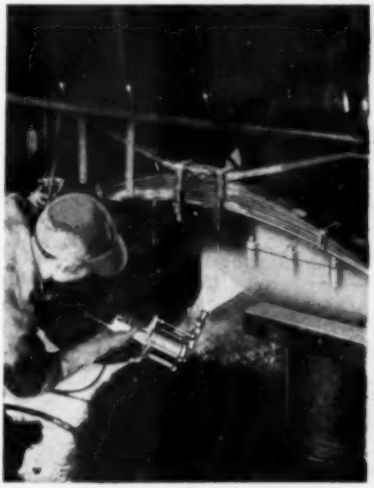
The Finest Perfected Spray Made

The Erby Type "A" Spray is the only positive pressure cup spray that can be handled in any position giving an even spray at all times until material container is emptied.

An essential spray for all finishing departments.

For detailed description and information on our complete equipment, write

THE ERBY MFG. CO.
121 West Grand Ave.
CHICAGO, ILL.



Continuous spraying in any position

with sea moss or burlap, working across the grain in such a manner as to pack the filler well into the pores and level with the surface, all of which should then be smooth. Let dry hard, about 24 hours, and apply enamel finish, as for birch.—I. F.

The best way to fill the grain of ash or oak flush with the surface of the surrounding wood, is to use a paste wood filler similar to that used for filling oak, walnut and mahogany in the manufacture of furniture.

Where you are going to finish refrigerators in white enamel, it would be better to use a natural paste wood filler—that is, one containing no coloring matter—for filling ash or oak. Some of the coloring matter used in coloring fillers might have a tendency to bleed, or be dissolved by the lacquer coats going over them, thus causing a discoloration in time, in your white enamel finish.

Where an extra smooth finish is desired, before proceeding with the white enamel coats it might be advisable, after finishing with natural paste wood filler and letting it dry overnight or about 24 hours, to follow this with a coat of clear liquid wood filler, which is built on a varnish base but which contains some transparent pigment, to fill in small pores that may not have been filled by the paste wood filling operation. Following this, after the liquid filler has been allowed to dry overnight, the regular white enamel undercoats and white enamel finishing coats can be applied in the usual way. This procedure works as well on kitchen cabinets as on refrigerators.

In case it is not absolutely necessary to fill the pores of the wood flush with the surrounding surface, you may be able to get a satisfactory finish by using a liquid wood filler alone, directly next to the wood, thereby eliminating the paste wood filler. For best results, however, it is better to use the paste wood filler.—L. C. Fanitzer.

Finishing W. Cedar Pencils

We are confronted with the problem of putting a smooth finish on pencils of western cedar, which wood, as you perhaps know, is a soft wood. The grain has a tendency to raise when our alcohol and shellac mixture is applied.

We have tried in various ways to prevent the raising of the grain, and we are wondering whether you could give us any advice as to how we could keep the grain down, either by the use of a filler or by the use of some hardening material.—G. P. Co.

Your inquiry does not state just what type of finish you desire on the pencils, nor what manner of application is employed. I assume, however, that it is a natural finish and that you tumble and air dry. Any shellac, or alcohol mixture will raise the grain, and varnish would dry too slowly.

Your best recourse probably is

AUTO LACQUERS
Contains no gum whatsoever.
We have made lacquers for all finishes since 1857
Chas. Cooper & Co.
90 Worth St., New York
Works—Newark, N. J.

nitro-cellulose wood lacquer, but as no two lacquers are made exactly alike, it is not possible to state that none will affect the grain. The type which will not, is probably one with a considerable proportion of varnish gums; in other words heavy in body and very tough in film. I suggest you try out various brands with this in mind using the thinner recommended by the maker.

The use of a filler would add an extra operation which probably will not be necessary, unless you desire a color effect as well as surfacing. For use under lacquer, most fillers should dry at least 24 hours, natural drying, so that for coloring purposes water stain would be quicker.—M. C. Soule.

All alcohol-shellac mixtures contain a small proportion of moisture, which is the active element that causes the raising of the grain of soft woods dipped into it.

There are now on the market good pencil lacquers, which are

How Du-Pros Shellac Saves Time

1 Covers better, requiring less brushing and less shellac. Sands smoother, requiring less sanding to secure a better result.

2 Gives a deeper, richer finish with the same number of coats. Or the same finish with less coats.

3

Du-Pros does these things because it has more in it to do them with.
The double processing puts it in.
Not a compound.
Just a strictly pure shellac double processed.
Try it. See for yourself.

JAMES B. DAY & CO
224 WEST SUPERIOR ST.
CHICAGO

Manufacturers of Wood Finishing Materials

Increase Production

AND

REDUCE COSTS

WITH

VITRIC

Makes a Surface Like Glass

Sprays freely
Rubs easily
Does not bloom
Resists moisture

Apply two coats in one day and get a LACQUER FILM at ONE-HALF THE COST

A MONEY MAKER for you if you want SPEED and LOW COST

Samples sent on request

Finishing Products Co.
13th Street and Sherman Drive
INDIANAPOLIS, IND.

free from moisture and which consequently raise the grain of the wood much less than alcohol-shellac mixtures. These pencil lacquers also have the advantage over shellac in that they dry with a hard, tough, water-proof and wear-resisting film; they also give more luster than shellac. You might try using one of these clear pencil lacquers to replace your shellac-alcohol mixture.

Regardless of whether shellac or lacquer is used for the finishing medium, a better finish can be obtained by using a clear filler of some sort to fill the small pores in the wood and bind down the fuzz and fiber, just as you suggest.

There are now on the market clear fillers for this purpose, which can be applied to pencils, small wooden handles and similar objects, by placing a number of the pencils in tumbling barrels and then throwing in on top of them only a small quantity of the clear filler. The tumbling barrel is then started and, as the pencils roll around and around in the barrel against each other, the clear filler is spread out in a very thin, uniform coat over all the pencils.

The tumbling operation should be continued until the pencils are entirely covered; then the pencils can be dumped out onto a screen and allowed to dry overnight, when they will be ready for a coating with either lacquer or shellac. In putting the clear filler into the tumbling barrel, care should be taken not to use too much for the number of pencils in the barrel. Otherwise there will be an excess of filler on some of the pencils, which may cause them to stick together and leave unsightly surface defects

when they are broken apart, after they are dry.

If only enough clear filler is used to apparently cover the pencils, it will be found that the pencils are practically dry when taken out of the tumbling barrel, and there will be no tendency for them to stick together.

We have assumed from your letter that you wish to finish these pencils in a clear or natural finish. There are now on the market some excellent colored lacquer enamels which cover solidly in one coat when applied by dipping, and give a beautiful, glossy finish over the bare wood.

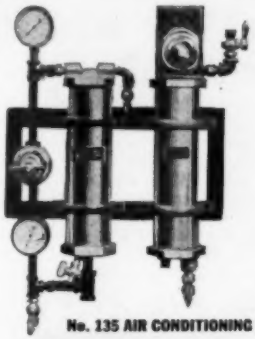
These solid-covering, colored-lacquer enamels would help you to hide any defects in the coloring of your wood, which might be objectionable in the clear finished pencils. They also contain some pigment which would naturally help to fill up the pores in the wood and give a better finish. If the surface is quite smooth, then one coat of such pencil lacquers should give good results, or for extra fine work, two coats can be used.—I. F.

More About That Enameling—Nickeling Job

On page 44 of the December issue of INDUSTRIAL FINISHING the S. S. Mfg. Co. has asked for the best and cheapest method to combine an enameling and a nickel plating job on brass tubes.

While the method outlined by INDUSTRIAL FINISHING is a good one, I have in mind a variation of that method which is certain of results. It is as follows:

Before plating, buff the portion above the bead to a high luster. Plate the tube to a little below the bead. This can be accomp-



No. 135 AIR CONDITIONING UNIT

BINKS

AIR CONDITIONING UNITS

Air conditioning is a vital factor in producing the fine finishes possible with modern spray equipment.

Binks Oil and Water Extractors and Binks Air and Varnish Heaters represent the "last word" in efficiency and dependability for this important job.

The extractor does not depend upon packing which gets saturated and requires replacement. It has no wearing parts to get out of order.

The oil and moisture are precipitated by impact as the air strikes a series of baffle plates. This action is uniform and independent of the care given the unit.

The electric heater has three controls—high, low and medium. A red signal light provides a continuous indication of the degree of heat being provided.

These and numerous other superior features of Binks Air Conditioning Units are only added evidence of the painstaking care with which every detail of Binks Equipment—gun, pressure container, booth, etc.—is designed and constructed.

Standardize on Binks.

BINKS
No. 106 GUN

BINKS SPRAY EQUIPMENT COMPANY
3121 Carroll Ave., Chicago

Get Your Share Of Re-Paint Profits

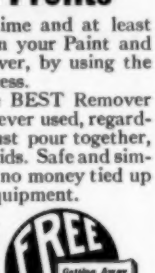
Save a lot of time and at least 75c a gallon on your Paint and Varnish Remover, by using the Campbell Process.

To have the BEST Remover that you have ever used, regardless of price, just pour together, two simple liquids. Safe and simple to use, and no money tied up in expensive equipment.

THIS BOOK

Write for a FREE copy of our booklet, "Getting Away from the High Cost of Paint and Varnish Remover."

It shows you how to make more profit on every job. Just pin your card or letterhead to this ad and a copy will be sent you by return mail.



The M. L. Campbell Co.
2334 Penn Kansas City, Mo.

ALAKA

THE PRACTICAL LACQUER

LACQUERS *That do not Blush*
ENAMELS *That do not Chip*
THINNERS *With No Bad Odors*

TRY US!
Samples FREE

Always use ALAKA Thinners

LACQUER & CHEMICAL CORPORATION.

138 Twelfth St. Brooklyn NY. Phone South 6334-6335

lished by wiring the tube to the cathode rod so that the entire piece will not slip, into the nickel bath. Plate as heavily as possible. After removing from nickel tank, wash in cold water, then in boiling water.

While hot, dip momentarily into the standard bright dip for brass. Wash off in cold water, then in boiling water to dry them off quickly. Do not buff the portion above the bead at this time, but proceed, with this exception, according to the directions prescribed by INDUSTRIAL FINISHING in their answer to this question. When the lacquer is perfectly dry, the whole tube may be buffed lightly, thus imparting a high gloss finish to the lacquered portion as well as to the nickel-plated part.—E. G. Burgess, Foreman Finisher.

Finishing Cheap Furniture

Considerable elm furniture is on the market today that could be given a much better appearance without additional cost. The porous parts of this wood appear too low, or the hard grain appears too high, whichever way one cares to express it. This is no fault of the finisher, nor of the finish. An examination of these low parts will show that the pores are perfectly filled. The trouble lies in sanding the wood for the finish.

Much of this wood is sanded with a triple-drum sander, under excessive pressure. Porous parts of this wood are much softer than the hard grain, and if sanded with heavy pressure the paper cuts deeper into the soft parts and leaves them lower. This is something every finisher should understand. Otherwise he is apt

to be blamed for something over which he has no control.

Elm furniture is made to sell at a moderately low price, and production costs in all departments must be kept low. The trouble arises through each department endeavoring to keep down its immediate cost without giving any thought to the cost of the finished article, or to the effect such action may have on the cost in some other department, particularly in the finishing department.

It is possible to fill these low places by piling on varnish and rubbing down the high spots, but this involves a lot of work and expense. It is foolish to save a few cents in preparing the wood for the finish at the expense of as many dimes in the finishing department.

Regardless of whether it is good furniture or cheap furniture, certain fundamentals are necessary to prepare the wood for the finish. These cannot be neglected profitably because even the cheapest furniture must show a presentable finish.

The finish demanded on cheap furniture today is better than that used on some of the better grades of furniture of 50 years ago. To get this finish at a reasonably low cost, the fundamentals in cleaning-up wood must be observed.

The main thing in preparing the surface of wood for finish is to have it level and smooth. This can be done either on the drum sander or wood scraping machine. Take only light cuts when sanding, and put the stock through at least twice.

Because of the speed at which the wood scraping machine operates, many people find it a more

"AROLAC for EXCELLENCE"

AROLAC

Wood—Metal Finishes.
Can be dipped or sprayed.
Air dried and waterproof.

Used on Automobiles, Wood Furniture, Metal Novelties, and Toys.

Specialists in Automobile Finishes. Colors matched in gloss or flat finishes.

Write for working sample

CELLULOID LACQUER ENAMELS

Manufactured by
ARIZONA LACQUER MFG. CO.
7-11 Sixteenth Street
BROOKLYN, N. Y.

Chicago, Ill., Office and Warehouse
701 So. Western Ave.

RAUX
ESTER GUM
RESINS

Unsurpassed in

HARDNESS - STABILITY - GLOSS

HIGHEST MELTING POINT
and
UNIFORMITY
GUARANTEED

W. W. ROSIN COLOR

for Resistant Lacquers and Light Varnishes and Enamels

Manufactured by
ROBERT RAUH, Inc.
310 Elizabeth Avenue
NEWARK, NEW JERSEY

CLASSIFIED

Advertisements under this heading 45 cents a line, minimum charge $1.35. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

WANTED

We require the services of a practical stain and wood filler man to assume charge of formulating and research department. Only man of wide experience considered. Must know about wood finishing and how to make materials for this purpose. Give particulars; will be held confidential. Address IF-122, care INDUSTRIAL FINISHING.

FOREMAN FINISHER WANTED

Man experienced in enamel and varnish finishes, must be able to handle men and get production. Give experience and references also salary expected. Apply Meinecke Manufacturing Company, Milwaukee, Wisc.

Buy from the pioneer manufacturer of

WOOD LACQUERS

Made in Newark, N. J., since 1857

Write us your requirements

Chas. Cooper & Co.

90 Worth St., New York

Works—Newark, N. J.

A NEW BOOK

PYROXYLIN ENAMEL AND LACQUERS

By Samuel P. Wilson

This is the pioneer book on pyroxylin lacquers, the first work devoted solely to their manufacture, materials and use.

It is written for the man who makes or uses lacquers and enamels; gives him direct practical information of benefit in his daily work, and is particularly valuable because the tests and processes covered are only those of proven commercial worth.

$3.00 Postpaid

D. VAN NOSTRAND COMPANY

Publishers and Booksellers

8 Warren Street New York

economical machine for leveling off flat surfaces. A touch with a belt sander completes the job. Wood prepared this way can be finished at a minimum cost. There are no low places to fill with varnish, and no high places to rub down.

A few years ago we thought it necessary to put on a heavy body of varnish in order to have a good finish. We found that a heavy body of varnish soon cracks. We know now that a thin finish is more durable, but if a thin finish is to appear well, it must be put on a properly prepared surface.

It is unreasonable to expect the finisher to keep down the cost of finishing if he has to work with surfaces that have not been properly prepared. The duty of the finisher is to draw out and reveal the inherent beauty of the wood, rather than merely cover up poor workmanship in the wood-working departments. This applies to cheap furniture, as well as to furniture of the higher quality.—T. B. Weston.

Fossil and semi-fossil gums have been supplanted by the common resins, coal tar residues, so-called gum esters, cumar and others. Some of them are derived from wood distillation, others are derivated and by-products of coal tar and asphaltum. As a matter of fact it is only a question of time when fossil gums will be exhausted and new bases for varnishes have to be found.

A truly remarkable achievement of American industry is its increase of nearly 60 per cent. over 1924 in the number of automobiles exported, raising the automobile to a rank, in our export trade, surpassed only by cotton and mineral oils.